

In This Issue—Wide Open for 500 Miles

MOTOR AGE

Vol. XLIX
Number 22

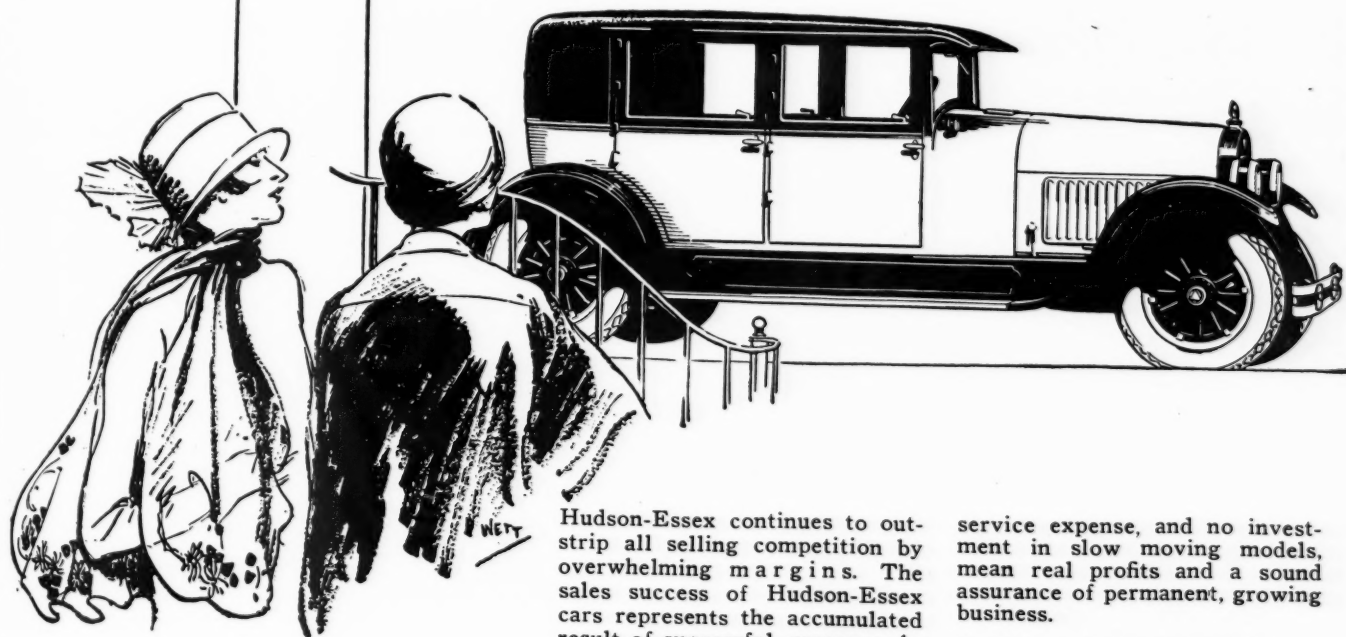
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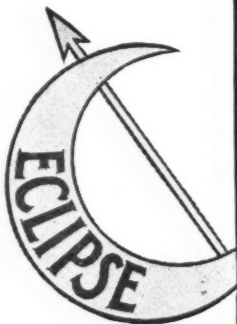
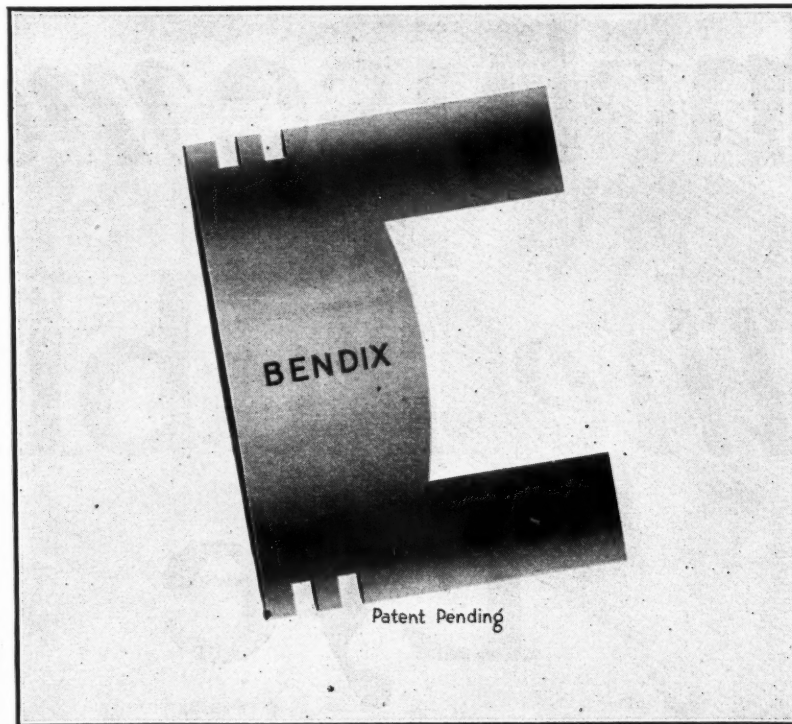
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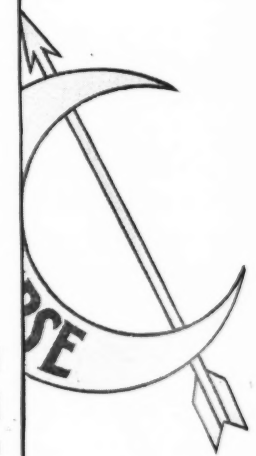
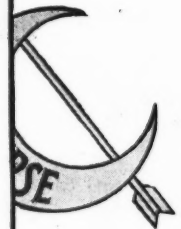
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MOTOR AGE

Vol. XLIX

Reg. U. S. Pat. Office

No. 22

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CONTENTS

Small Engines and Rain Cut Indianapolis Speed.....	9
By Sam Shelton	
Inside Views of What Made the Wheels Go 'Round.....	10
By A. H. Packer	
Some Mechanical Details of 91½ Cubic Inch Race Cars.....	13
Mechanical Specifications of Race Cars.....	15
Running Story of the Race.....	16
By Clarence Phillips	
Some New Ones in Accessories.....	22
The Reader's Clearing House.....	23
New Equipment for the Shop.....	28
Flat Rate Forum.....	29
Sounding the Call of the Open Road.....	30
Editorial.....	31
News of the Industry.....	32-43
Three Series Now in Nash Line.....	38
Trade Association Activities.....	42
Coming Motor Events.....	43
Specifications.....	44
CLASSIFIED ADVERTISING SECTION.....	111
INDEX TO ADVERTISERS.....	112-113

MOTOR AGE is published every Thursday by

CHILTON CLASS JOURNAL COMPANY

Mallers Building, 5 South Wabash Avenue, Chicago
C. A. MUSSELMAN, President and General Manager
J. S. HILDRETH, Vice-Pres. and Director of Sales
W. I. RALPH, Vice-Pres.

DAVID BEECROFT, Vice-Pres. J. H. COLLINS, Vice-Pres.
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Cable Address: Motage, Chicago
Telephone: Central 7045

OFFICES

New York—U. P. C. Bldg., 239 West 39th St.; Phone
Pennsylvania 0080.
Detroit—7338 Woodward Ave.; Phone Empire 4890.
Cleveland—540 Guardian Bldg.; Phone Main 6860.
Philadelphia—56th and Chestnut Sts.; Phone Sherwood 1424.
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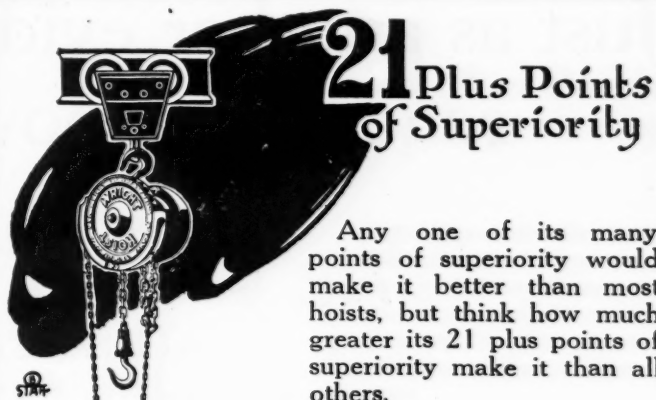
Owned by United Publishers Corporation, 239 West 39th Street, New
York; CHARLES G. PHILLIPS, President; A. C. PEARSON, Vice-President;
FRITZ J. FRANK, Treasurer, H. J. REDFIELD, Secretary.

SUBSCRIPTION RATES: United States, Mexico and U. S. Possessions,
\$3.00 per year; Canada, \$5.00 per year; all other countries in Postal Union,
\$6.00 per year; single copies, 35 cents.

Member of the Audit Bureau of Circulations.
Member, Associated Business Papers, Inc.

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Subscriptions accepted only from the Automotive Trade
Entered as Second Class Matter, Sept. 19, 1899, at the Post Office at
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The **NEW STUTZ**

with SAFETY CHASSIS

wins the Closed-Car Sweepstakes
in The Los Angeles-Yosemite Run!

By F. E. MOSKOVICS, *President*

STUTZ MOTOR CAR COMPANY OF AMERICA, Inc.
INDIANAPOLIS

NEW STUTZ owners and dealers are daily writing and wiring in to the factory, enthusiastically testifying to the ability of the car in road-performance. A recent issue of this publication carried a STUTZ advertisement in which a few such letters and telegrams from owners were reprinted.

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On his own initiative and faith, he entered a NEW STUTZ — and the result is already automobile history. Against a field of famous cars in this classic event, the hardest official road test of the year, The NEW STUTZ showed superior economy, roadability, power and stamina.

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(Signed)

F. E. Moskovic
#



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3. Always Kept Up-to-Date
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5. Lowest Time-Payment Rates



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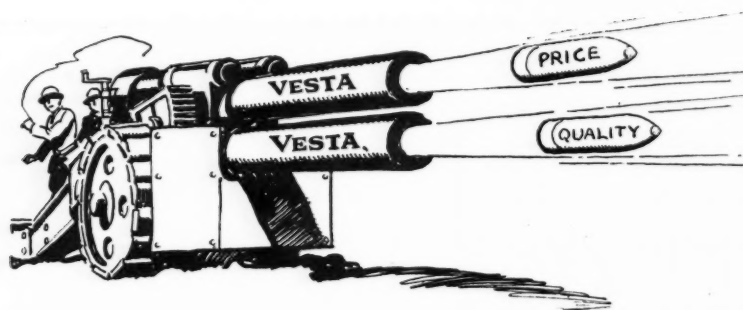
The first—the famous Studebaker Used Car Pledge that has become nationally known through factory advertising and which creates in the prospect's mind the feeling of confidence that clinches used car sales.

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Now comes the Vesta VACO—a battery built to give service that the majority of car owners expect—but meeting a new low price field.

With these TWO leaders—one for “quality”—and one for “price”—you have a selling advantage that is **DOUBLE BARRELLED**—that makes you the leader in your community.

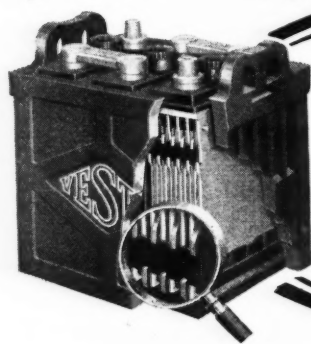
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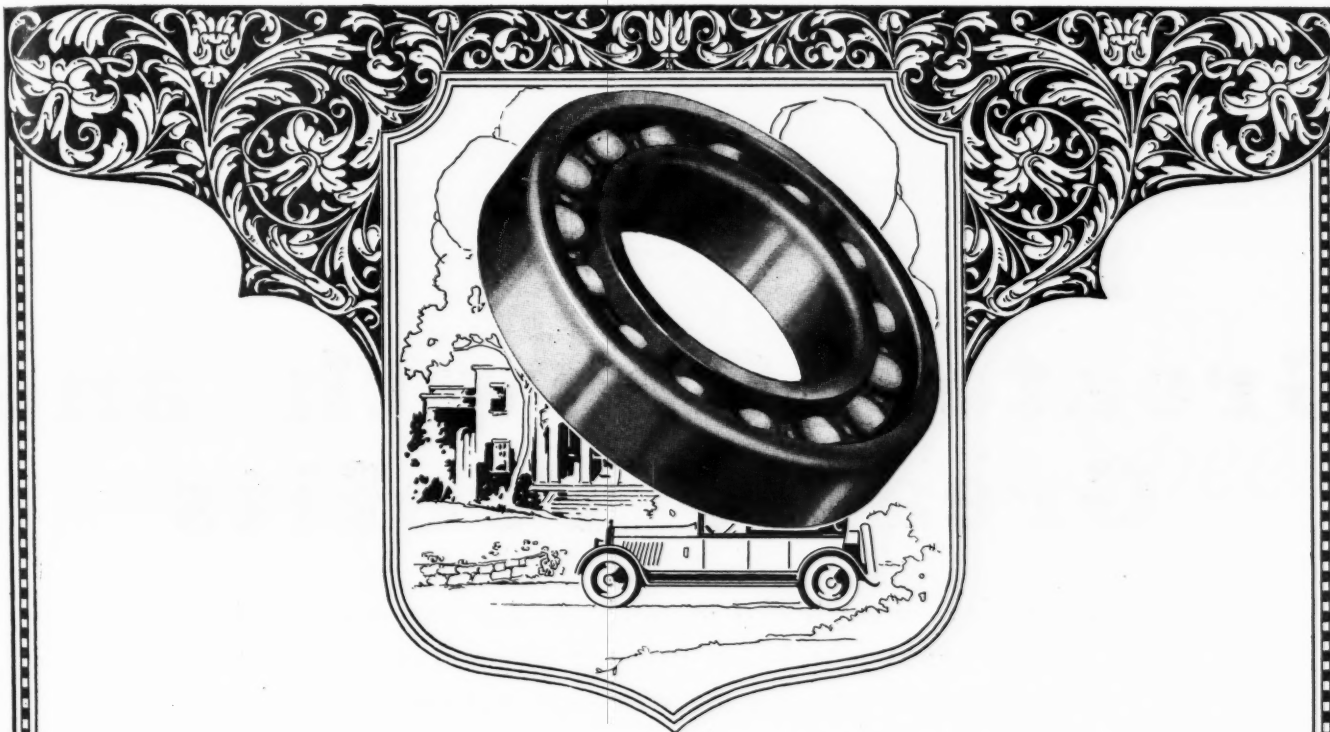
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4. And this without readjustment devices to take up looseness

(sometimes called "clearance") in the bearings.

5. Rigid and permanent centering of shafts and pitch contact of gears — preventing premature transmission and axle noise. This is only possible in a ball bearing.

Are not these exclusive advantages worth more in any motor car?

In its production of 110,000 ball bearings per day New Departure is the largest user among bearing manufacturers of the most enduring bearing metal known—electric furnace *high carbon* chrome alloy steel.

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Yet Chrysler is confident that with the addition of the new lower-priced Chrysler "60" to complete its magnificent line of cars of *standardized quality* its dealers are entering upon a period of even greater prosperity.

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You can share in this progress. Your inquiry will be held in strictest confidence.

CHRYSLER SALES CORPORATION, DETROIT, MICHIGAN
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CHRYSLER

Small Engines *and* Rain Cut Indianapolis Speed

*But 91½ Cubic Inch Race Cars Show Up Well
in First Trial*

By SAM SHELTON

BY winning the Fourteenth International Sweepstakes race at Indianapolis Memorial Day, May 31, Frank Lockhart demonstrated first, that a newcomer on the big brick oval has equal opportunity with the experienced drivers, and then that the new 9½ cubic inch race cars have remarkable capacity for speed and performance.

Without being pushed except for a brisk spurt now and then Lockhart was a good two laps in the lead of his nearest competitor and had established an average speed of 94.63 m.p.h. when the race was called at 400 miles on account of the approaching rainstorm that broke with a downpour a few minutes later. A shower at noon that had caused the race to be suspended for an hour and 10 minutes had wet the track pretty thoroughly before the drivers were called in and had served to slow down the rate of speed that might have been expected for the early part of the race.

Owing to the interruption of the race at noon and the calling of the event at 400 miles instead of allowing it to go the full 500, the race lacked some of the intense thrills that have characterized these great speed classics for years, but still the competition was keen enough and the rivalry intense enough to keep a record crowd in the stands and vantage points of the infield until the last.

Attendance was estimated by T. E. Myers, Speedway manager, at about 140,000 which was said to have been the largest in the history of the track.

The speed set in the early part of the race compared favorably with that set at Indianapolis last year when the 122 cubic inch cars established new records. At the



Frank Lockhart, winner of fourteenth Indianapolis race, being greeted by his wife at finish

end of 25 miles this year the average of the leader was 103.06 m.p.h. as compared with 104.17 for the first 25 miles last year. At the end of 100 miles this year the leader's average was 100.39 m.p.h. as compared with 103.89 last year. At 200 miles, after the showers had interfered, the speed had come down to 97.76 but at the same point last year it was 103.79.

After the 200 mile mark the average was gradually reduced, reaching the low point of 94.56 m.p.h. at 375 miles, then gaining slightly as the drivers settled down to the grim business of finishing to the best advantage.

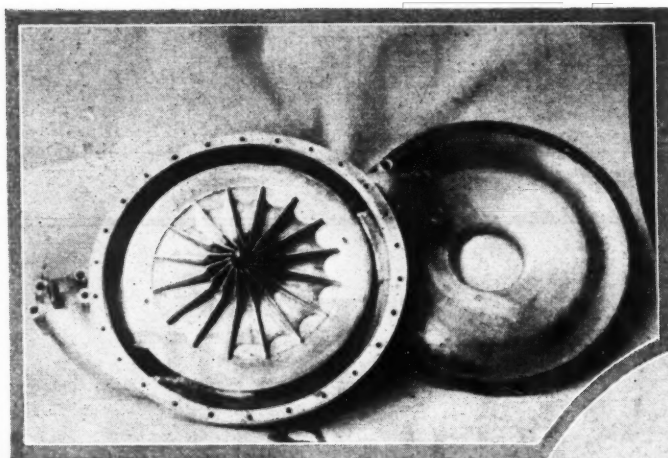
It was a Miller Special that Frank Lockhart of Los Angeles, heretofore unknown in the big Speedway races, but of considerable experience on the dirt tracks, drove to victory, and it was also a Miller Special that Harry Hartz wheeled into second place.

Third place winner was Cliff Woodbury of Chicago, also a dirt track driver, whose mount, a Boyle Special, was of Miller construction but with engine equipped with Boyle valves.

Fourth place also went to a Miller Special, driven by Fred Commer.

The Duesenberg name, distinguished for successive and spectacular victories in 1924 and 1925, was kept in the front rank by Pete DePaolo who finished fifth in a Duesenberg Special.

Only two Duesenbergs started, that driven by DePaolo and a two cycle job driven by Ben Jones which went out of the race in its 53rd lap when it developed axle trouble and skidded into the wall. Three other Duesenbergs that had been entered were not ready to qualify.



New Duesenberg supercharger with two outlet ports. Cover shown removed.

THE marvel of the high speed small engine was demonstrated when the finish of the 1926 speedway contest at Indianapolis saw thirteen American built cars cross the finish line, the winner making a lower average speed than last year, but outdistancing and outlasting the competitors from across the water where small bore engines were first exploited.

Some may wonder how it is that an engine but three-quarters the size of those used last year could develop nearly the horsepower, but it is merely a case of turning up faster so that more charges of gas are fired per second in order to compensate for the reduction in fuel in each explosion.

Of those that finished, five were new Miller cars built similar to those of last year but with bore and stroke of 2.18 in. and 3 in. instead of 2.34 in. and 3.5 in. Seven of the cars were rebuilt Millers where the use of new crankshafts and special pistons made it possible to use the old cylinder blocks and one car was a new Duesenberg finished at the last minute. Six of the rebuilt Millers had bore and stroke of 2.34 in. by 2.65 in. while one driven by Thane Houser had bore and stroke of 2.188 in. and 3.00 in.

Reduction in speed compared with last year is doubtless due to the fact that this is the first year in which the small engines have been used and to the fact that the 1400 lb. chassis of last year was specified for these cars. The loss of the front wheel drive Millers from the contest while the race was still young may also have had the effect of reducing competition and permitting the drivers to use some caution in negotiating the turns on the slippery track.

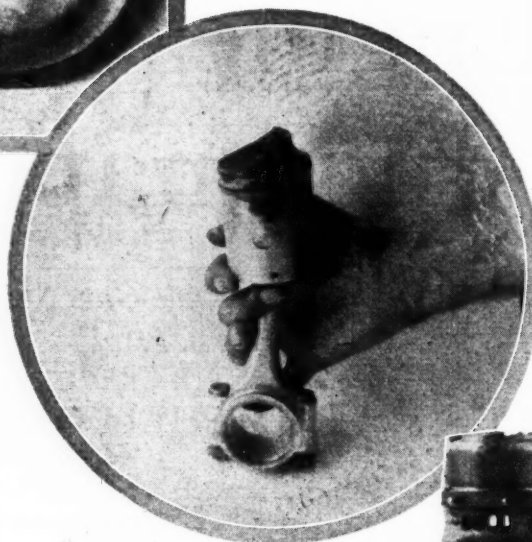
While the small engines proved themselves, they also brought out engineering facts that show precautions to be taken in construction of such engines for high speed and great power. The development of Fred Duesenberg's two cycle car was partly due to his fear of the result of valves functioning with an engine turning up nearly 7,000 r.p.m. His opinion was justified in the success of his two cycle car, which was well in the running until a blown tire caused it to skid into the wall.

The terrific punishment that the valves and pistons get was also shown in the cars which went out. This accounted for Dave Lewis taking the count after he had turned lap after lap with uncanny precision, negotiating the turns with great ease.

Inside

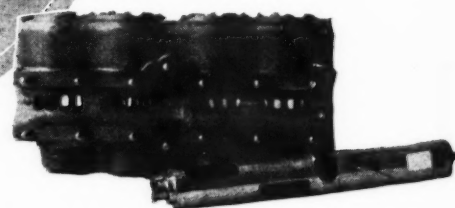
Made the

By A. H. PACKER



In Circle: Just a handful. Piston and connecting rod used in Duesenberg two-cycle engine.

Below: One cylinder block of the two-cycle Duesenberg engine. Rotary fuel distributor valve shown in foreground.



The same fate overtook Shattuc driving car No. 22 earlier in the race, while engine trouble which may have been due to valves or pistons overtook Fred Lecklider, driving car No. 17.

In designing the small cylinder blocks for these cars it was necessary to bring the valves and piston heads very close together so that in some of the practice spins it was found that the valves would actually strike the piston. A curious result of the inertia forces acting in high speed engines was observed in some of Fred Duesenberg's experiments preliminary to the race, when he found that duralumin connecting rods would actually increase in length, so that with pistons fitted with little clearance there was the possibility of elongated rods producing interference.

Minor troubles in many cases caused serious loss of time at the pits and in other cases put the cars out of the running. Fouled plugs were among the first troubles to cause the cars to come limping in for assistance. Loose pistons fitted for operation at excessive temperatures were to blame, indicating the need of studying the expansion problem.

Next came the problem of connections. A water leak stopped one of the English entries while the temperature indicator plug working out of McDougall's car caused it to loose so much water that it had to be withdrawn, due to overheating. Oil lines also came in for their share of grief. In Shafer's car No. 4 an oil connection came loose and an emergency repair was effected by using an Alemite connection for a plug. Lacking the right material and the ingenuity to use it, this car might also have been among those absent when the checkered flag was waved.

Among the list of minor ailments which proved serious were leaks in the gas tanks, which developed in the Locomobile Junior Eights entered by Clif Durant. Pit

Views of What Wheels Go Round

*High Speed 91.5 Cubic Inch Race Cars
Get First Severe Test on American
Tracks and Show Possibilities
for Future Development*

stops were also made to adjust carburetors, change tires, add water, gasoline and oil, adjust shock absorbers, adjust oil pressure and to lower air pressure in the front tires. The reduction in tire pressure was doubtless made to facilitate holding on the curves, the 30 by 5.25 balloon tires being used on nearly all of the cars.

The Hamlin front drive car built by Chevrolet Brothers made a very creditable showing in its endeavor to keep up with the eight cylinder speed creations, until one of the standard Ford connecting rods let go and put it out of the running.

Superchargers were a matter of course and no cars attempted to compete in the 500 mile grind without them. One failure of the supercharger gears was recorded, this occurring in Ellingboe's car, while trouble with supercharger was partially responsible for the Sievers, Jr., special failing to qualify in time to enter. The supercharger, properly designed, and constructed is accepted as an essential part of the modern race car and may in the near future find its way in some form into the construction of engines used for commercial purposes.

Balloon tires again demonstrated their ability to stand the grind of a long race as well as to provide comfort in passenger car service. Eighteen tires were changed as compared with 36 a year ago, but the race was shorter and the day cooler.

Following is a description of the various makes of cars competing in this year's race.

DUESENBERG FOUR CYCLE CARS

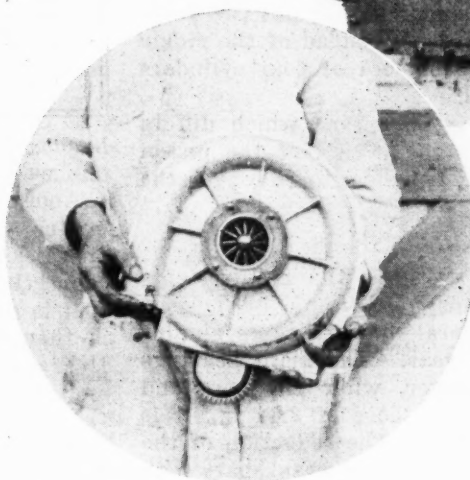
The regular Duesenberg cars differ but little, except in engine size, from those which won at Indianapolis in 1925 and 1924. The chassis is practically unchanged.

In the engine, only such changes have been made as were required by the specified piston displacement of 91½ cu. in. instead of 122 cu. in. In making such small parts it was decided there was not room available to make the heads detachable, so the engines this year have cylinder heads made integral with the blocks, the arrangement of four to a block being retained.

Several varieties of gears drive the supercharger which is somewhat different from the previous one, although still of the centrifugal blower type, rotating approximately five times as fast as the engine crankshaft. At the front of the engine, spur gears are used, while bevel gears carry the drive to a cross shaft between the fourth and fifth cylinder. Then planetary gears are used for the final drive of the rotor. An overrunning clutch is



Top: One of the two cylinder blocks used in new 91.5 cu. in. Miller engines.



Left: The new Miller supercharger.

provided to relieve the supercharger of undue stresses which would otherwise be set up when sudden changes in engine speed occur.

THE DUESENBERG TWO CYCLE ENGINE

The two cycle Duesenberg was designed to take advantage of the supercharger to the fullest extent. Previously, two cycle engines, while theoretically capable of burning the fuel twice as fast and developing twice as much power, suffered on account of a number of things. One was the difficulty of getting the old gas out which resulted in the new charge of fuel being diluted. It was also difficult to get an adequate charge in the cylinder, aside from the dilution problem.

With the supercharger, both of these difficulties are to a great extent overcome. As the piston in the Duesenberg two-cycle engine nears the bottom of its stroke, the exhaust port is uncovered. Just a fraction of a revolution later the inlet is opened and fuel under pressure is blown into the combustion chamber, driving the old gas out and filling the cylinder to capacity. The upward stroke of the piston then gives the necessary compression to develop full power.

It is interesting to think of an eight cylinder engine firing four cylinders per revolution, but it is more interesting to think of a two cycle construction in which eight cylinders fire every revolution, two of them firing simultaneously. First No. 1 and No. 8 fire, then No. 4 and No. 5, then No. 2 and No. 7, followed by No. 3 and No. 6.

This firing order necessitates special ignition, there being two distributors, each of which has a four cylinder

cam rotating at engine speed, which is twice the speed required for the conventional four cycle engine distributor.

Pistons for the two cycle engine have the same general appearance as the others except on the top is the raised deflector which prevents the incoming charge going straight across the cylinder and out the exhaust port. This deflector comes within about 1/16 in. of the cylinder head, the combustion chamber space being at the sides of the deflector between the piston and cylinder head. The spark plug is at the center of the cylinder and is screwed into a duralumin plug which is screwed into the top of the cylinder and also closes up the water circulating space at the top. The duralumin plug gives the heat generated in the cylinder an additional path through which it can flow to the outer jacket of the cylinder and due to its conductivity keeps the spark plug from overheating.

Reference has been made to fuel entering the cylinders as the inlet ports are opened. This is not accomplished solely by the piston action but is controlled by a rotary valve or distributor, there being two of these, one for each block of four cylinders. Four ports for the four cylinders handled are cut through these rotary valves, making a path from the inlet manifold to each cylinder. To conform to this construction, the supercharger has two ports through which the fuel is delivered, instead of the single port used last year, so that each block of four cylinders has its separate supply of fuel.

Another detail of the two cycle engine which differs from the older type engine is the design of the piston rings, these being wider to enable them to ride over the ports without being broken.

THE NEW MILLERS

Engines specially designed to meet the requirements of 91.5 cu. in. piston displacement are found in the new Miller cars, although the general appearance is similar to the cars which raced last year. The main bearings have been made somewhat longer, while the bore and stroke are reduced. Instead of a bore of 2.34 in., it is 2 3/16 in., a reduction of 5/32 in. The reduction of the stroke was accomplished by using a new crankshaft with shorter throws, the stroke now being 3 in. instead of 3 1/2 in.

The supercharger has been changed, both in regard to the way it is driven and the manner in which the fuel is fed to the engine.

Last year the two camshafts, which were driven at the front end by means of a gear train, had gears at their rear ends which drove the supercharger. This year the supercharger is driven directly from the crankshaft by means of spur gears mounted on ball bearings. In the illustration which shows the Miller supercharger in the

Troubles Which Caused Pit Stops

Car and Driver	Plugs	Tires	Minor Breaks & Adjustments	Water, Gas & Oil	Shock Absorb. Adjustments
1—Lewis	1	1	1	1	1
3—Hartz	1	1	1	1	1
4—Shafer	1	1	1	1	1
5—Cooper	1	1	1	1	1
6—Elliott	1	1	1	1	1
7—Ellingboe	1	1	1	1	1
8—Comer	1	1	1	1	1
9—Durant	1	1	1	1	1
10—Duray	1	1	1	1	1
12—DePaolo	1	1	1	1	1
14—MacDougall	2	1	1	1	1
15—Lockhart	1	1	1	1	1
16—Hill	1	1	5	2	1
17—Lecklider	1	1	1	1	1
18—Duff	1	1	3	1	1
19—Hepburn	1	1	1	1	1
22—Shattuc	1	1	1	1	1
23—Corum	1	1	1	1	1
24—Nemish	1	1	1	1	1
26—Eldridge	1	1	1	1	1
27—Hawkes	2	3	5	2	1
28—McCarver	1	1	1	1	1
29—Ben Jones	1	1	1	1	1
31—Gulotta (for Hartz)	1	1	1	1	1
33—Abell	3	1	4	2	1
34—McDougall	1	1	1	1	1
36—Woodbury	2	3	1	2	1
39—Guyot	1	1	1	1	1

Note—Figures denote number of times trouble was experienced or number of tires changed.

hands of one of the mechanics, the gear exposed is the one which meshes with the gear on the crankshaft.

Another illustration shows the left side of the Miller engine and gives a good idea of the way the blower operates. From its center there is a cast aluminum connection which runs down to the carburetor, and the fuel is drawn up by the action of the blower. The fuel is then delivered to the center of the intake manifold. Here a difference will be noted between the new Miller car and the 1925 jobs, for on the older cars the connection from the blower went to the rear end of the intake manifold. The new design is intended to give more equal fuel distribution to the various cylinders, although in each case a smaller manifold of trombone construction above the regular intake manifold is used in order to equalize the fuel distribution.

THE REBUILT MILLERS

Changes in the stroke, by the use of special crankshaft, enabled last year's Miller cars to get into the 91.5 cu. in. displacement class. Maintaining the bore of 2.34 in. made it necessary to use a stroke of 2 5/8 in. and in order to hold the same combustion chamber dimensions the piston pin was located lower in the piston. The chassis is practically unchanged from last year, this being also the case in the Miller cars using the new engine.

FRONT WHEEL DRIVE MILLERS

The front wheel drive cars built by Miller are similar in general appearance to those of last year, although equipped with the new engine. The engine is turned the reverse way in the frame so that the supercharger is at the front. The last minute experiments in such things as axle gear ratios have much to do with getting the car to deliver the best that is in it, and with this in mind, the tubular axle was made this year in three sections, bolted together. The center section is thus easily removed without disturbing the axle as a whole, which makes it a simple matter to get at the differential or transmission mechanism.

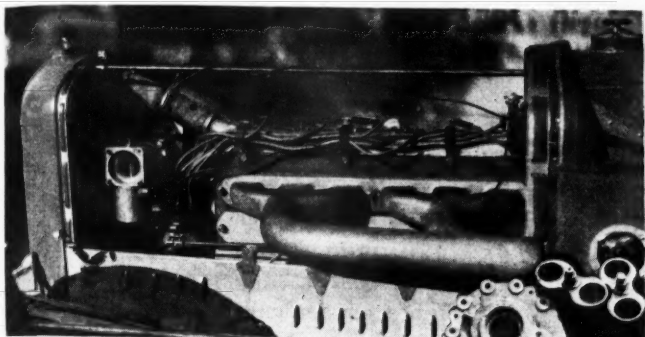
Changes have also been made in the universals through which the drive to the front wheels is transmitted. Metal

(Continued on page 14)

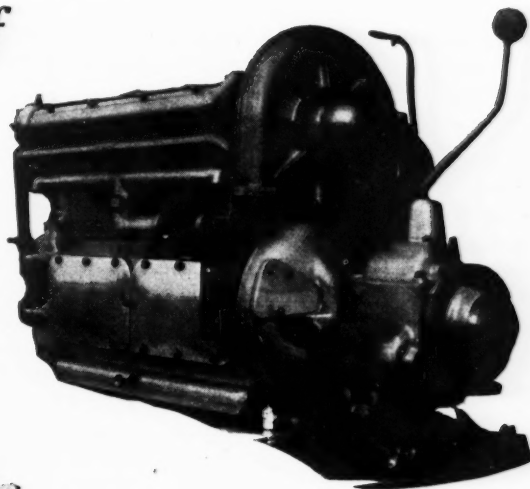
Troubles Which Put Cars Out of the Race

No. 1—Lewis	Broken valve
No. 5—Cooper	Transmission
No. 7—Ellingbo	Supercharger
No. 9—Durant	Gas leak
No. 10—Duray	Gas leak
No. 17—Lecklider	Gasket or piston
No. 22—Shattuc	Broken valve
No. 23—Corum	Engine block
No. 24—Nemish	Transmission
No. 26—Eldridge	Steering knuckle
No. 27—Hawkes	Frozen camshaft
No. 28—McCarver	Connecting rod
No. 29—Ben Jones	Hit wall
No. 34—McDougall	Water leak
No. 39—Guyot	Piston

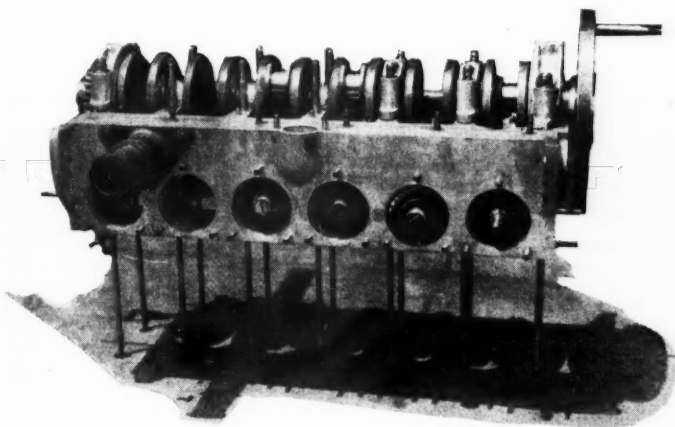
Some Mechanical Details of 91½ Cu. In. Race Cars



Above—Left side of Guyot Special showing exhaust manifold.
Right—The supercharger used on Guyot Special, taken down. This is a Rootes blower.



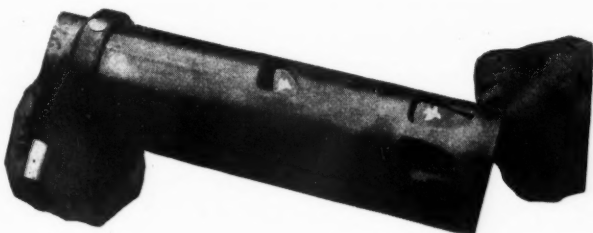
The new 91.5 cu. in. Miller engine with supercharger mounted above at rear. The intake manifold is shown.



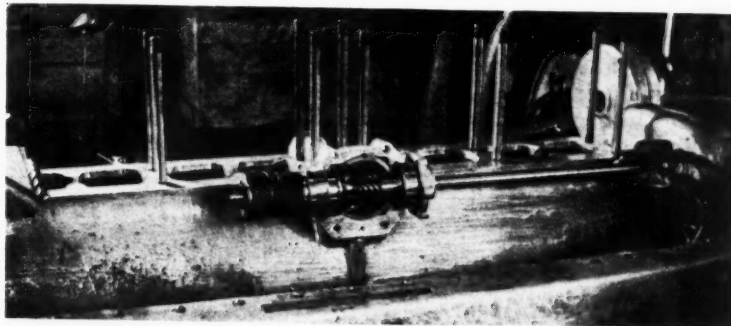
Side view of crank case of engine used in Guyot and Schmidt Specials, showing sleeve valve operating gears and ball bearing mounted crankshaft.



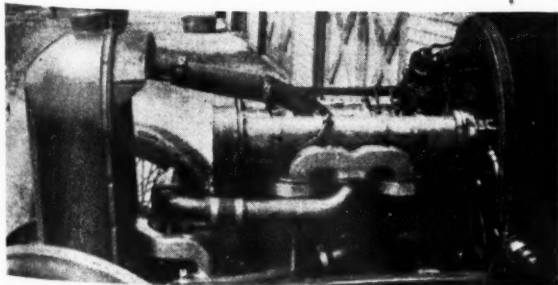
Piston and connecting rod assembly of Guyot Special.



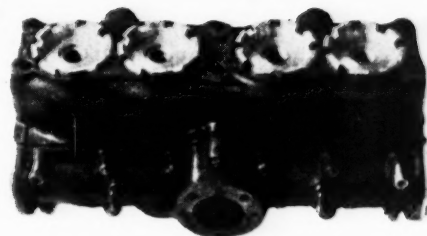
Sleeve valve used in Schmidt Special.



Supercharger drive on new Duesenberg engine. The bevel gears operate shaft through engine block to opposite side where supercharger is mounted. The skew gear shown drives the distributor shaft.



The K. & M. Special. Supercharger is mounted just behind lower part of radiator.



Intake side of two cycle Duesenberg engine block, with distributor valve in place.

(Continued from page 12)

joints are used and the outer ones use ball bearings on the universal joint pins, which greatly facilitates proper handling of the car on the turns.

THE NICKLE PLATE SPECIAL

The two stroke cycle idea is incorporated in a rebuilt Miller engine known as the Nickle Plate Special, there being ports in the cylinder walls which are uncovered as the piston reaches the lower part of its stroke. Regulation valve action is used at the top of each cylinder to take care of the incoming gas charge, which under the pressure of the supercharger blows the old gas out. Further motion of the piston shuts off the exhaust port openings and the supercharger then fills up the cylinder.

K & M SPECIAL

The K and M Special is the product of two St. Louis men, J. J. Kellogg and E. P. Mertes. It is a four cylinder engine of 2.585 in. bore and 4.3125 in. stroke. The crankshaft has three main bearings, the front and rear being ball and the center plain. Thermosyphon cooling is used which is unusual in race cars intended for the Indianapolis track. Gasoline to the carburetor is supplied by means of a single Autopulse unit.

The supercharger on this engine is particularly well designed and installed. It is at the front of the engine, immediately behind the radiator and is driven from the crankshaft by means of gears. The front end camshaft drive is by means of spur gears mounted on ball bearings.

HAMLIN FRONT DRIVE SPECIAL

The Hamlin Front Drive Special was built by Chevrolet Brothers and contains a great number of Ford parts. A Ford engine with standard transmission and clutch is used, it being reversed in the car so that the transmission is immediately behind the radiator. Rods from the pedal members on the transmission run back to pedals in the driver's cockpit, so that ideal seating conditions are obtained.

The control used in the Ford has been retained except that the brakes are reversed, the pedal control actuating the brakes on the rear wheels, which are the new Ford type, while the lever operates the regulation transmission brake.

Ford rear springs are used both at the front and rear. The front axle which carries the differential has a short pinion shaft carried on two ball bearings and this shaft engages with the square hole into which the square shaft of the universal joint would fit on a standard Ford car.

The engine is supported at three points, the rear support being at a cross member in about the center of the car,

made from a standard front cross member. The engine slopes down two or three inches at the rear, so that oil from the front or transmission end will flow back to the pump.

Pressure lubrication to all parts is used, but there is no scavenging pump as in many of the race cars, a large sump being used instead, and the oil runs into this and is recirculated by the gear type pump.

The engine has a bore of 2 $\frac{7}{8}$ in. obtained by cutting out the Ford block and putting in sleeves 3/16 in. thick, which give adequate cooling due to the uniform wall thickness. The stroke is 3 $\frac{1}{2}$ in. A standard 16 valve Fronty-Ford cylinder head is used and a Rootes type supercharger is installed at the rear of the engine and is driven by gears from the crankshaft.

THE LOCOMOBILE JUNIOR EIGHT

Durant's two entries, the Locomobile Junior Eights, are powered with eight cylinder engines having bore and stroke of 3 3/16 in. and 3 in. respectively. These cars, according to Cliff Durant, have been built under the direction of Harlan Fengler. They are supercharger equipped, the drive being by means of gears at the rear of the crankshaft.

The supercharger is between the carburetor and intake manifold as it is on other cars this year, the fuel being fed to the center of the intake manifold.

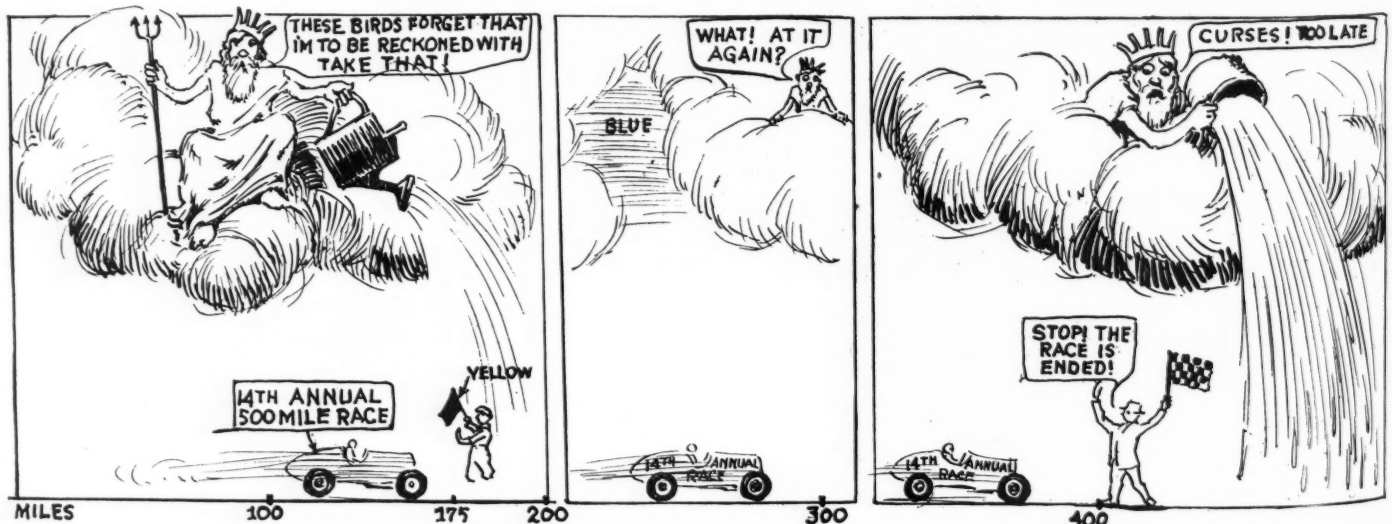
GUYOT AND SCHMIDT SPECIALS

The Guyot and Schmidt specials are of unusual interest due to the use of the type of single sleeve engine employed, and also due to the fact that rights to this construction were recently secured by the Continental Motors Corp.

The Schmidt sleeves originally had extra ports which were intended to facilitate exhausting the gas when the piston reached the bottom of the stroke. Trouble was experienced, however, due to the rings catching on the edges of the ports. For this reason special sleeves were made before the race so that to all intents and purposes the Guyot and Schmidt cars are duplicates.

THE ELDRIDGE SPECIALS

These two cars are about the same in general construction although one is wider than the other. The one with the wide frame has the oil tank at the side of the driver in the position the mechanic would occupy. The engine is four cylinder, has rollers at main and connecting rod bearings and is provided with a Rootes type supercharger. Other details were given in the April 8 issue of MOTOR AGE.



Compiled by A. H. Packer and W. L. Carver

[illegible]



Lockhart in car he drove to victory

HERE is an action story of the race as it progressed. Its purpose is to let the reader visualize about what his impressions would have been had he sat in the press box and checked the changing picture.

It is as accurate as possible under such conditions of writing. In reading the article just imagine yourself at the race and making observations as the drivers zoom past the stand.

INDIANAPOLIS, May 31.

EVERYTHING is all set for the 1926 Speedway classic. The sky at this time, 8:50, does not look too encouraging. However, it has not succeeded in bluffing out the mobs.

They are here from all points of the compass. On the way out to the track it seemed that every third or fourth car was from some other state.

As usual long lines of cars were parked at the entrances all night long. Judging by the congestion on the streets and at the track the attendance will be good.

People are pouring in through the gates in a steady stream. The stands are not filled but are well packed in spots. What the total attendance finally amounts to will depend likely on the elements, as thousands who do not care to chance a soaking still have an opportunity to stay home.

There was a good rain last night and it just began sprinkling again.

The track looks damp but if it gets no worse the race will not have to be postponed.

Referee Brisbane and other officials of the race just drove by the stand, looking us over.

28 Qualified Starters

There are 28 qualified starters for the big sweepstakes. Among those who qualified yesterday was De Paolo in a Duesenberg.

Much to the surprise of many fans as the result of newspaper reports Pete will drive for Fred Duesenberg, himself. Reports had it originally that he would enter his own Duesenberg and also register as a Miller Special jockey.

There is the first bomb. It does not sound like there is thought of calling off the race. It is 9 o'clock, standard time. The big mill will start in an hour.

All cars in the race have wire wheels.

Drivers are beginning to take their starting positions. Soon the grind will be under way. Rain has stopped and the sun is shining but it still looks threatening.

Cooper, in a front drive Miller, takes pole place. In the front line also are Hartz, Miller Special, and Duray, in a Locomobile Junior.

WIDE OPEN — But Bulletins On the

By CLARENCE PHILLIPS

Second row—Ellingboe, Miller Special; Shafer, Miller Special; Lewis, front drive Miller.

Third row—McDougall, Miller Special; Elliott, Miller Special; Hill, Miller Special.

Fourth row—Shattuc, Miller Special; Durant, Locomobile Junior; Gulotta, Miller Special.

Fifth row—Comer, Miller Special; Woodbury, Boyle Special; Hepburn, Miller Special.

Sixth row—Batten, Miller Special; Hawkes, Eldridge Special; B. Jones, Duesenberg two-cycle.

Seventh row—Guyot, Guyot Special; Lockhart, Miller Special; Houser, Abell Special.

Eighth row—Nemish, Schmidt Special; Eldridge, Eldridge Special; Corum, Schmidt Special.

Ninth row—McCarver, Hamlin, Fronty Ford front drive; Lecklider, Nickel Plate Special; De Paolo, Duesenberg.

Tenth row—Duff, Elcar Special.

Airplanes are zooming overhead and mechanics are gathered about the mounts on the track.

Bennie Jones in his Duesy is being pushed from formation lines to Duesenberg pits. Looks like some last minute mechanical attention is needed.

Another bomb. Within seven minutes they will be on their way.

There goes a whole flock of bombs. Five more minutes.

Bennie Jones is being wheeled back to his position. Trouble was quickly adjusted. Crowd cheers the Duesenberg driver as he resumes his place in the starting bank.

A photographer in an airplane flies over us. You can see him grind the crank.

Three minutes before starting it is sprinkling again, but very lightly.

The Pack Is On Its Way

Seth Klein, the starter, is on the bridge with the red flag. Engines are being started. There is a fearful roar and popping.

Hard to get Duray's Locomobile Junior started. Smoke pours from the rear cars.

They are off on the pace making round. The crowds stand and roar. Duray still stuck. Rolls to pits.

All others are gone.

No. 10, Duray, is on the way. All are going now. The next round will be the real start. Let's see who takes the lead.

Here they come. The crowds are on their feet yelling like mad. I don't believe the stands are as full as last year.

First lap of 500-mile derby is on in earnest.

Hartz takes the lead. He is closely followed by Cooper, Duray and Shafer.

Lecklider, in his Nickle Plate Special, is far behind the flock. Here they come again.

Shafer, in a Miller; Duray, in a Locomobile Junior; Hartz, in a Miller, and Lewis, in his front drive Miller, are the leaders on the second lap.

Earl Cooper in a front drive Miller, is limping.

De Paolo is well behind the leaders. Houser in an Abell Special just passed, making an awful noise and looking over toward pits.

Lockhart to Fifth Place

Lockhart moved up into fifth place from some distance behind on the third lap.

for Only 400 Miles

Full Distance

A Running Story of the Indianapolis Race from Notes Dashed Off by Press Stand Observer While Great Mill Progresses

Bits of Speedway News

Frank Lockhart's time for 400 miles was 4 hours, 13 minutes and 37.58 seconds, an average of 94.63 m.p.h.

This was the first time that rain interfered with the race after it was under way. Once before, 1915, the race was postponed two days on account of rain.

Two of the Miller cars had front wheel drive. They were No. 1 driven by Lewis and No. 5 driven by Cooper. Neither one finished. No. 1 went out in its 91st lap with transmission trouble and No. 5 dropped out in its 73rd lap with a broken high speed gear.

The referee was Arthur Brisbane, noted editorial writer.

The pace maker was a Chrysler Imperial 80 roadster driven by Louis Chevrolet.

All cars were equipped with wire wheels and balloon tires. Most of the tires were size 30 by 5.25. Hartford shock absorbers were generally used.

The Hamlin Special Ford with front wheel drive lasted only 22 laps.

Duesenberg's two cycle job, No. 29, ran creditably for 53 laps showing possibilities for further development along that line.

Forgetting to turn on his ignition after he had stopped for tire changes and refueling cost Harry Hartz a precious 45 seconds near the end of the race at a time when he was pressing Lockhart for the lead. When the switch was turned the car started.

Frank Lockhart, the winner, is 23 years old and married. He came to the track as relief driver for Peter Kreis. The illness of Kreis gave him his big opportunity.

Pete DePaolo is stepping up. He is on his fourth lap but considerably behind the lead.

Lockhart has moved up into fourth place. He is traveling some.

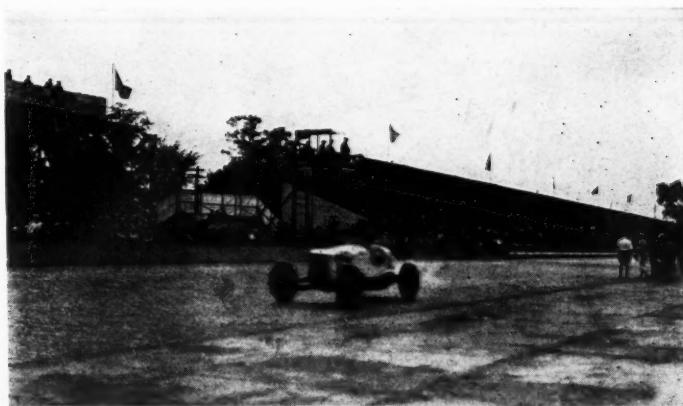
DePaolo comes to pits.

Cooper out of pits after short stay.

Those on the sixth lap are Shafer, Lewis, Duray, Lockhart, Hartz.

Lockhart has passed Duray. Cooper and Duff are farthest behind. They are on fourth lap. Shafer, the leader, is on his sixth.

Nemish, in a Schmidt, a French entry, is a lap behind Shafer; Corum, in another Schmidt, is a lap behind. Guyot, in a Guyot



Winning car flashing across the tape as starter and assistant starter signal victory

Special, also French, is three laps behind Shafer. Guyot on his sixth; Shafer on his ninth lap.

Hawkes, in an Eldridge Special, an English entry, is a lap and a half behind.

Eldridge, driving an Eldridge Special, is about a lap, or something less behind.

Earl Cooper is going good again but has two laps to make up on Shafer who continues to lead. Earl is cheered by the crowds. He has friends.

The grind has gone for 25 miles. Time 14:43.27. Last year the speed for the first 25 miles was 14:24.09. They are not going quite so fast this time but the difference is not great. The rate is 103.06 m.p.h.

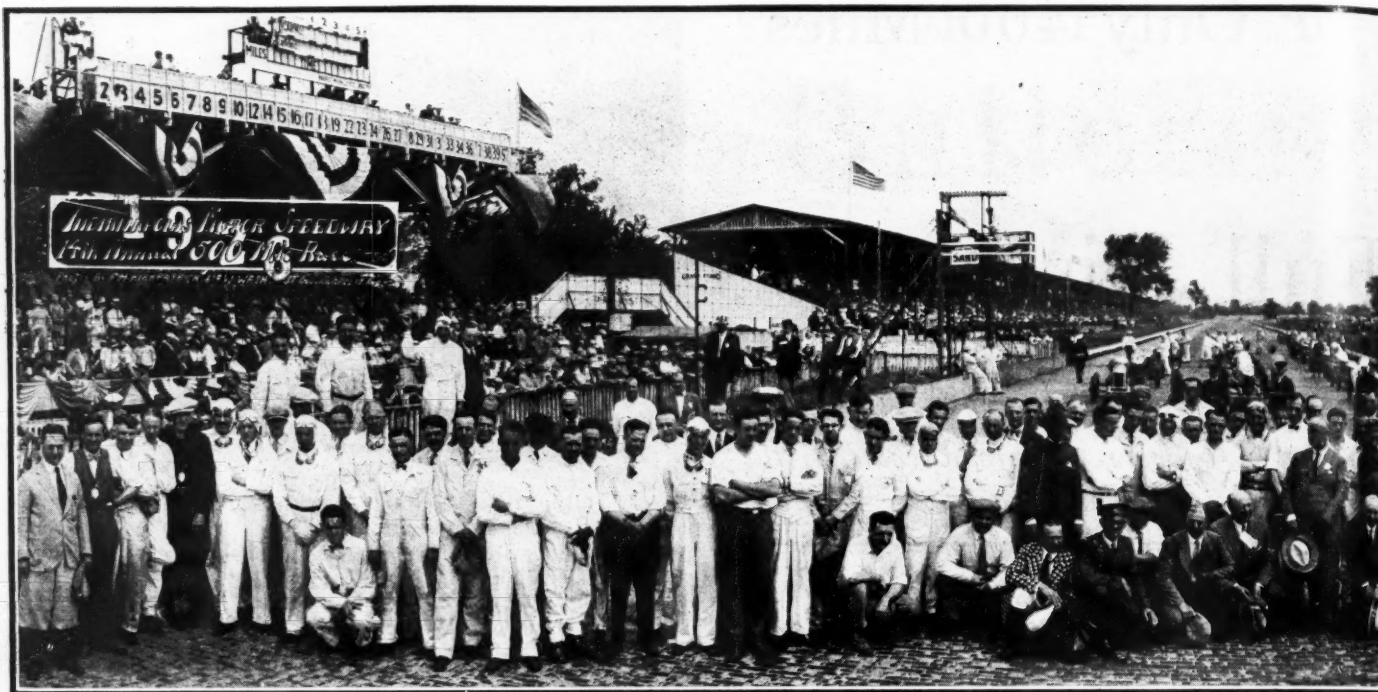
There has been a great deal of speculation as to whether last year's time could be equalled with the reduction of piston displacement from 122 to 91½ cubic inches.

Expected Lower Speed

In fact the consensus in hotel lobbies and at the track has been that the track record will be slightly under the 101.13 made by DePaolo in a Duesenberg last year, which was the track record.

Starting and Finishing Positions

Car No.	Driver	Make	Out (Lap)	Position at finish
Starting in First Row				
5	Cooper	Miller Spl.	73	
3	Hartz	Miller Spl.		Second
10	Duray	Locomobile Spl.	34	
Starting in Second Row				
1	Lewis	Miller Spl.	91	
4	Shafer	Miller Spl.		Ninth
7	Ellingboe	Miller Spl.	39	
Starting in Third Row				
16	Hill	Miller Spl.		Running Sixth
6	Elliott	Miller Spl.		
34	McDougall	Miller Spl.	19	
Starting in Fourth Row				
22	Shattuc	Miller Spl.	16	
9	Durant	Locomobile Spl.	60	
31	Gulotta	Miller Spl.		Running
Starting in Fifth Row				
8	Comer	Miller Spl.		Fourth
36	Woodbury	Boyle Spl.		Third
19	Hepburn	Miller Spl.		Eighth
Starting in Sixth Row				
14	Batten	Miller Spl.		Seventh
27	Hawkes	Eldridge Spl.	91	
20	B. Jones	Duesenberg Spl.	53	
Starting in Seventh Row				
39	Guyot	Guyot Spl.	8	
15	Lockhart	Miller Spl.		First Running
33	Houser	Abell Spl.		
Starting in Eighth Row				
24	Nemish	Schmidt Spl.	41	
26	Eldridge	Eldridge Spl.	45	
23	Corum	Schmidt Spl.	44	
Starting in Ninth Row				
28	McCarver	Hamlin Spl.	22	
17	Lecklider	Nickel Plate Spl.	23	
12	DePaolo	Duesenberg Spl.		Fifth
Starting in Tenth Row				
18	Duff	Elcar Spl.		Tenth



Panorama view of drivers, officials and cars before the start

Dave Lewis has been camping hard on Shafer's tail for the last two rounds. The crowds yell as they pass the stands, about 200 feet separating them.

Here they come again.

Lewis in his front drive Miller, springs into the lead just before reaching the press stand. It is his sixteenth lap.

Order at this period for the first five is:

Lewis, Shafer, Lockhart, Hartz and Duray.

Those who have been pinning their faith on the front wheel drives are smiling.

Ellingboe, in a Miller Special, is right on the heels of the vanguard, probably a mile behind Lewis. The leaders are fairly well bunched, making the fuss interesting. The one farthest behind is Shattuc, in a Miller, about six laps to the bad.

On the twenty-second lap Shafer again grabs the lead. Lewis goes right after him.

Klein, the starter, flags Hartz for some purpose, but Harry keeps on going.

Woodbury, in Boyle Special, stops at the pits. Flat tire.

Shafer slows down at pits but keeps on going.

McDougall, in a Miller Special, stops at pit.

Houser, in his Abell, runs by slowly with a lot of thunder, like he is about to experience trouble.

Lewis In First Place

Time for the first 50 miles 29:23.01. Order: Lewis, Lockhart, Duray, Shafer, Hartz. The rate is 102.04 m.p.h. Last year 104.13.

In the last 25 miles Lewis has lost and regained first place. Lockhart has stepped up from third to second place. Duray has come up from fifth to third place. Shafer has dropped from second to fourth place. Hartz has dropped from fourth to tenth.

The race now is between Lewis and Lockhart with Duray not far in their wake. Any one of the first five above named is a strong contender though. Cooper is three full laps behind Lewis, but he is driving hard and closing the distance.

Lewis is on his 32nd lap.

Time for the first seventy-five miles, 44:40.50. Still a little slower than last year.

Order at 75 miles: Lewis, Lockhart, Shafer, Duray, Hartz. Only one change in position of the first five in the last 25 miles. That is a shift of Shafer to third place from fourth and a drop-back by Duray from third to fourth.

The rain has held off aside from a little spattering and the track is in good condition.

McCarver, in his Hamlin Special, Fronty Ford, pushed to pits.

The Schmidt's continue to run far behind. Corum, in one, is ten laps in the rear of Lewis who leads. Nemish in the other Schmidt, is doing somewhat better but he is five laps to the bad.

Hawkes, in the English Eldridge, is almost 20 miles behind Lewis, while Eldridge, in an Eldridge, is 35 miles behind. This next turn will complete Lewis' first hundred of the five century go.

The Ten Prize Winners

Place	Driver	Car	Prize
First	Lockhart	Miller Spl.	\$20,000
Second	Hartz	Miller Spl.	\$10,000
Third	Woodbury	Boyle Spl.	5,000
Fourth	Comer	Miller Spl.	3,500
Fifth	DePaolo	Duesenberg Spl.	3,000
Sixth	Elliott	Miller Spl.	2,200
Seventh	Batten	Miller Spl.	1,800
Eighth	Hepburn	Miller Spl.	1,600
Ninth	Shafer	Miller Spl.	1,500
Tenth	Duff	Elcar Spl.	1,400
Total			\$50,000

An additional consolation prize of \$10,000 was provided to be distributed among the drivers who did not finish among the first 10, prorated according to finishing position, the driver finishing eleventh to receive not more than \$1,000 and the driver finishing last not less than \$500.

A prize of \$100 was awarded the winner of each lap.

Lewis has reeled off his first hundred.

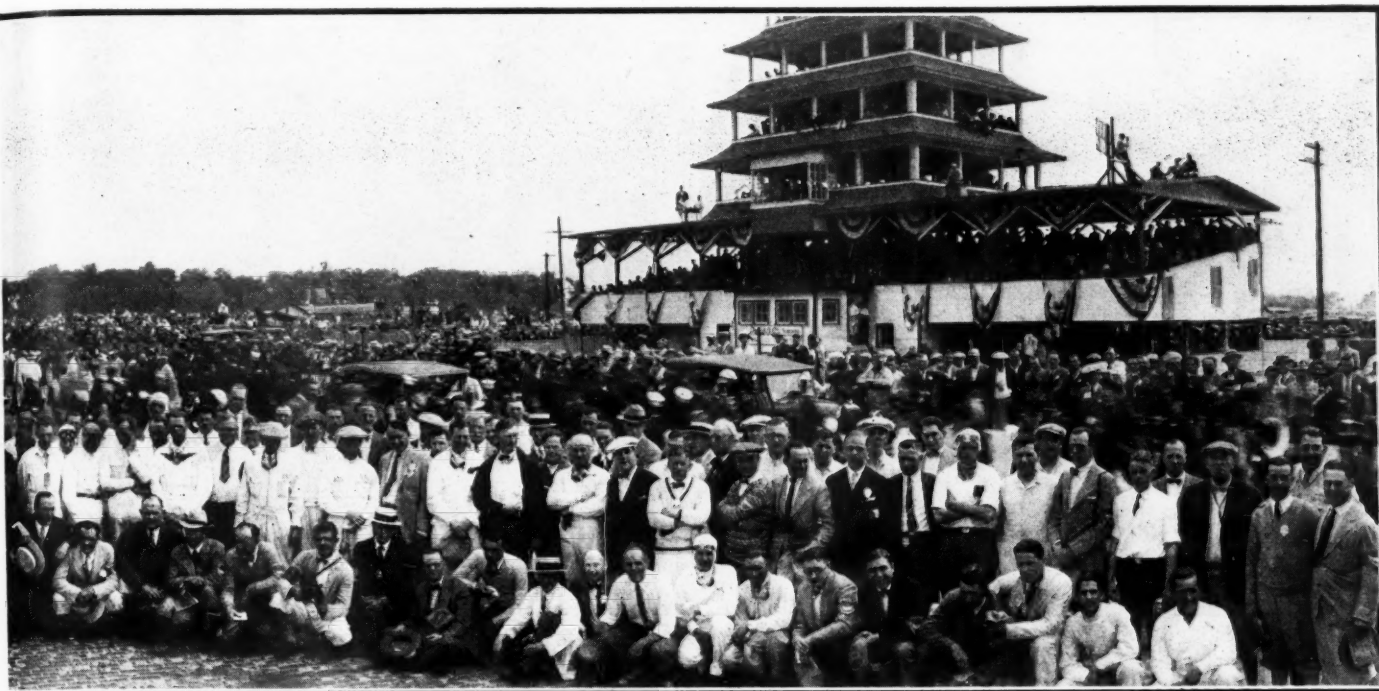
Time for 100 miles, 59:45.91.

Order of leaders: Lewis in front drive Miller; Lockhart, in a Miller Special; Hartz, in a Miller Special; Elliott, in a Miller Special; Comer, in a Miller Special.

Time for 100 miles last year 57:44.94. A little slower. They are making around 100.39 miles per hour. Last year 103.89.

Lewis has retained the lead without a break for 75 miles. Lockhart has held second place consistently. Hartz, in the last 25, has come up from fifth to third place. Elliott in his Miller Special, has advanced from the front of the second five to fourth place. Comer, in another Miller Special, has come up from the second five to fifth place.

Shafer, who was in third place at 75 miles is back in the second string of five.



Duray, in a Locomobile Junior, who was in fourth place at 75 miles had a mishap on his 34th round which checked out his car for the day. His feet were burned, not badly.

Lewis just lapped Lockhart on the former's 51st lap and the latter's 50th.

That gives Dave a good lead. It is interesting that just now all five leaders are Millers, with a front drive Miller heading the procession.

Elliott and Comer, in fourth and fifth places, respectively, are five miles or so behind Lewis.

They have reeled off 125 miles in 1:14:43.66. Last year DePaolo at this stage had been going 1:12:12.18. About two and a half minutes slower for the distance this time. Rate of speed 100.03 m.p.h. Last year 104 m.p.h.

Order of leaders at 125 miles is same as at 100. They seem to be settling down to business.

Pit stops have been numerous. Mostly for tires and gasoline. Also considerable valve trouble.

Ben Jones, in the Duesenberg, two-cycle mount who went

into the pits smoking like a bonfire is back in the fight. He is 14 laps behind Lewis.

Pete DePaolo, is only four laps behind Lewis now and putting up a good fight. He passed two or three cars in front of the stands amid cheers.

It looks a little better for the Duesenberg stable but not so good yet. All depends on Pete, from the present outlook.

Lewis just stopped at pits. His first stop. It is his 59th lap. He has a lap to the good on Lockhart and will have to work fast not to lose this advantage.

Lockhart takes lead.

Lewis still at pits. Eldridge back in his car after short relief. Ellingboe relieves Bennie Hill.

Houser, in Abell Special, passes us very slowly. He's had hard luck today.

The first 150 miles was made in 1:31:39.13. Last year, 1:26:22. Rate of speed 98.20 m.p.h. Last year, 103.89.

Order of first five: Lockhart, Hartz, Lewis, Cooper, Elliott.

In the last 25 miles Hartz has come up from third to second place. Elliott has slipped back from fourth to fifth. Comer, who joined the vanguard back about fifty miles has disappeared from the leading quintette.

The Marmon Motor Car Company has sent fine box lunches to the press stand. On behalf of the Fourth Estate—thanks. We eat while we work.

Sprinkling again. Now somewhat harder. Starter Klein signals the drivers to look out for wet track.

Pete DePaolo stops at pit on his 66th lap—two laps behind Lockhart, the present leader.

The assistant starter is waving white flag for drivers to stop until the rain is over.

A little disappointing but—safety first.

No mechanical adjustments are permitted during such an intermission as this.

The sun is out and a stiff breeze is blowing. Looks like we will soon see more racing. On the whole the crowds are patient although there has been a little mumbling and stamping of complaint.

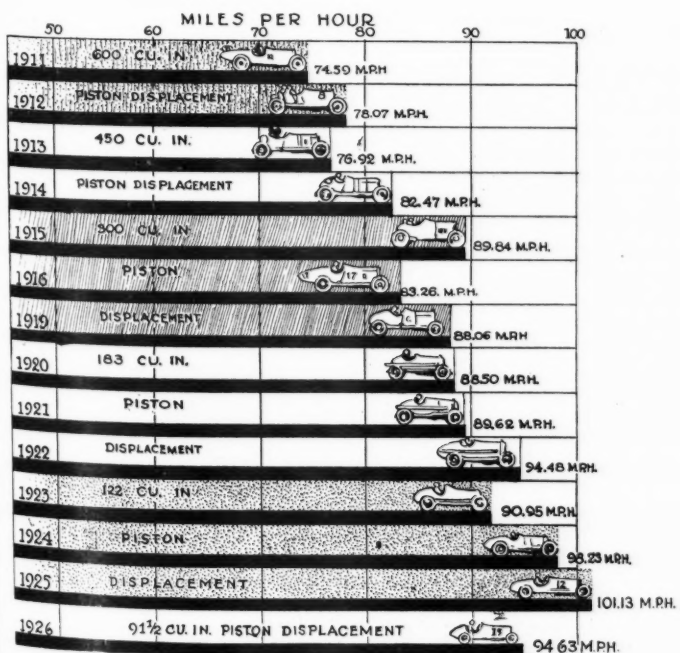
Ready For a New Start

They are getting all set to go. The officials have had a nice problem adjusting positions. The drivers are strung out along the track. Cooper is being pushed to the pits, however.

Lockhart has completed his 72nd lap.

The new start is slow, although the track seems dry again, at least in front of the stands. DePaolo did not get away.

Woodbury in his Boyle Special, speeds by us. He is now in fifth place. Engines apparently are not all warmed up yet.



Graphic record of all Indianapolis races

June 3, 1926



ELLIOTT



ELLINGBOE



B. JONES



SHAHER



SHATTUC



COMER

Cooper is out of pits and is backed up to starting line. Having trouble shifting gears. He is moseying along by pits like he might be getting ready to stop there again.

Hartz is less than a lap behind Lockhart, Lewis a lap behind, Elliott two laps and Woodbury two laps.

Out of 28 starters 13 are left in the race. Those still in are: Cooper, Hawkes, Shafer, Gulotta, Batten, Lewis, Woodbury, Hill, Hepburn, Elliott, Lockhart, Hartz, DePaolo, Duff, Houser.

DePaolo is burning up the bricks but has a long way to go to overtake Lockhart, the leader. Pete is on his 73rd lap and Lockhart on his 82nd.

Lockhart and Hartz with about a mile between them are widening the gap to their rear. Lewis is still less than a lap behind but Woodbury and Comer in fourth and fifth places, are three behind. Woodbury has been improving his position steadily.

Up to 175 miles he did not appear in the first five but now he is fourth and running fast and smoothly. There has been considerable call on relief drivers by the rear guard.

Time at 200 miles 2:02:44.26. The rate is 97.76 m.p.h.

Cooper is back in race once more, but looked like he was getting ready to stop again.

Order at this point: Lockhart, Hartz, Lewis, Woodbury, Comer.

In the last 25 miles Lewis has crept up one notch, Comer has made an appearance at the rear end of the first five and the Boyle Special, with Woodbury up, has joined the leading quintette.

At 225 miles the order stands where it was at 200. The big fight is between Lockhart and Hartz.

Woodbury has slipped up into third place with his Boyle Special. Elliott is in fourth place, and Comer in fifth. Cooper is out of the race with a broken gear.

Hawkes, in Eldridge, to the pits.

Hartz takes the lead, displacing Lockhart. Woodbury is stepping on it, himself. He is only one lap behind Hartz.

There is a pretty race now on between Hartz and Lockhart.

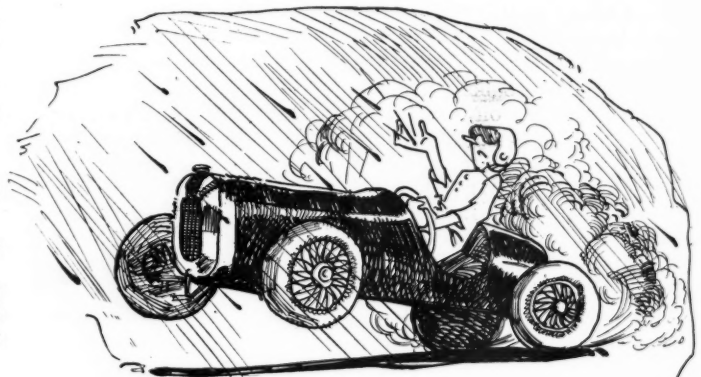
They just went by, less than 100 feet between them and Lockhart trying his best to pass Hartz at the south turn.

Here they come—neck and neck. The fans go loco, yelling and stamping their feet. As they approached the south turn this time, on the 104th lap Hartz jumped a little farther in the lead.

We are waiting for them to come by us again on the next lap.

And here the two bullets come! They are surely hitting it up.

More yelling. Hartz has the better of the argument by about 25 yards. But the race is still on. Lockhart does not like to give up and apparently Hartz feels like he doesn't want to do anything charitable.



When it began to rain the drivers brought their steeds to a sudden stop. This drum major can walk with the back of his head against his calves. The artist "caught him" after he had nearly straightened up



Table Showing Ten Leading Cars for Each 10 Laps

Position	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400
	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.	MI.
1.	4	1	1	1	1	15	15	15	15	15	15	15	15	15	15	15
2.	1	4	15	15	15	3	3	3	3	3	3	3	3	3	3	3
3.	15	15	4	3	3	1	5	1	1	36	36	36	36	36	36	36
4.	3	3	10	8	6	5	1	36	36	6	8	8	8	8	8	8
5.	10	10	3	6	8	6	6	8	6	8	6	14	6	12	12	12
6.	19	7	7	9	5	8	8	6	8	14	14	6	12	6	6	6
7.	22	6	6	5	14	36	14	14	14	12	12	12	14	14	19	14
8.	6	8	8	14	12	14	12	19	12	19	19	19	4	19	14	19
9.	7	19	9	7	9	12	36	12	19	18	18	4	18	18	18	4
10.	16	9	14	12	19	9	19	5	31	31	4	18	31	4	4	18

This table shows the ten leading cars, in order, for each ten laps. Follow the number of each car to the right. Example: Car No. 12 was not among the winners at the first twenty-five-mile post, but it went to tenth place at 100 miles, climbing gradually, with occasional setbacks, to finish in fifth.

Car numbers and drivers: 1, Lewis; 3, Hartz; 4, Shafer; 5, Cooper; 6, Elliot; 7, Ellingboe; 8, Comer; 9, Durant; 10, Duray; 12, DePaolo; 14, Bratten; 15, Lockhart; 16, Hill; 18, Duff; 19, Hepburn; 22, Shattuc; 31, Gulotta; 36, Woodbury.



COOPER



DE PAOLO



GULOTTA



HILL



LEWIS



HARTZ

On the 106th lap Hartz still leads by about 35 or 50 yards. Lockhart takes lead now.

Hartz coasts by and stops at pits. It is a shame to spoil a frolic of that kind. But it was fine while it lasted.

Hartz out of pits and away again.

Order at this time, on Lockhart's 109th lap is: Lockhart, Hartz, Woodbury, Elliott, Comer.

De Paolo has been doing some fast driving, coming up a lap in the last 35 miles. But he still finds himself seven laps or 17½ miles behind Lockhart.

Comer is improving his position. Now in fourth place.

Batten, in a Miller, is a new one in the front column. He now is in fifth place.

Hawkes, in the Eldridge, on his 83rd round, while Lockhart is on his 122nd. Both Schmidt's were lost. No foreign car is in the real picture.

Peter De Paolo is furnishing excitement at present. He just heeled in after Lockhart, the leader. The crowds like Pete's stuff and they show it with cheering.

Here they come—the mobs go wild and Pete jumps ahead of Lockhart. He still is about 7½ laps behind Lockhart on the day's score, but it is evident De Paolo right now is showing better time.

As they speed by us on the present circuit Pete is running away from Lockhart like a scared rabbit. How that Duesy jockey is driving. Had he put up this sort of a fight from the first and missed so much grief he would not be a mere comet from the back ranks.

Now Pete is half a lap in front of Lockhart—with about seven laps to make up on the latter, though before they are on an equal footing.

Either Lockhart has reduced the fearful pace he was setting a while back or else De Paolo's speed just makes it look like that.

The lead horse wheeled off the first 300 miles in 3:10:20.50. Order at the point was as follows: Lockhart, Hartz, Woodbury, Comer, Batten. The rate of speed was 94.57 m.p.h.

Batten has dropped out of the lead pack and Elliott has come up into that select company again. Elliott, driving a Miller, has been up in the first five on two or three occasions, but seems to have had a hard time staying. Lecklider relieves Shafer.

Time for 325 miles, 3:26:10.96. Last year, 3:12:51.97. Average, 94.68. Last year, 101.11.

The score board shows De Paolo to have climbed into the front column, in fifth place. It is the first time since this show opened that the little Duesy flyer has been in that group.

Time for 350 miles, 3:42:04.56. Last year, 3:27:23.24. Average, 94.56 m.p.h. Last year, 101.26.

Order at this time: Lockhart, Hartz, Woodbury, Comer, De Paolo.

Lockhart is two laps to the good on each, Hartz and Woodbury, four laps on Comer, and seven on De Paolo.

Lockhart's speed at 350 miles had been at the rate of 94.36 m.p.h.

Last year at 350 miles De Paolo had been traveling at the rate of 101.26 m.p.h.

One thing is certain. The race today will not be a fair test of the smaller engine. There have been too many complications. But the race will produce a lot of good stuff to shoot at practically and speculatively regarding the lowered piston displacement.

Later on in the year we likely will get a chance to see how the smaller power plant performs on other tracks. But no doubt there are many here who will not accept today's showing as the best that could be done with the smaller engined jobs.

However, with respect to speed—it was not generally believed the time this year would equal last year's even under the most favorable conditions.

The lower averages during the qualification trials indicated that. The most ambitious prediction I heard in the press stand before the race was 100 miles an hour.

Time for 375 miles, 3:57:55.85. Average 94.56 m.p.h. Last year's time, 3:42:01.15. Average, 101.34 m.p.h.

Order: Lockhart, Hartz, Woodbury, Comer, De Paolo.

Positions are the same as they were at 350 miles.

Lockhart has two laps on Hartz and Woodbury, five on Comer and seven on De Paolo.

De Paolo continues to drive steadily but Lockhart, himself, has been stepping out some more and holds his advantage well. He can drive, that fellow.

It is raining. Lockhart on his 160th lap. Starter Klein is preparing to flag the drivers and end the race. Too dangerous to continue.

Lockhart was just given the checkered flag.

Winner New to Bricks

Time by Lockhart for 400 miles which ended the race: 4:13:37.58. His rate of speed was 94.63 m.p.h.

Hartz, in a Miller, won second.

Woodbury, in the Boyle Special, was third.

Comer, in a Miller Special, took fourth.

De Paolo, in a Duesenberg, was fifth.

Elliott, in a Miller Special, was sixth; Batten, in a Miller Special, was seventh; Hepburn, in a Miller Special, was eighth; Lecklider, who finished in Shafer's Miller, was ninth; Duff, in an Elcar Special, was tenth.

Lockhart finished almost three laps ahead of Hartz. The winner of this year's derby came here practically unknown, except on dirt tracks, to become famous overnight. He was booked for a relief driver only two weeks ago, so it is reported, but showed up so well in testing cars he was entered as a regular driver.

All of which goes to show that pre-race predictions do not always mean so much. The prophets failed to include Lockhart in their ticket. They also overlooked Woodbury, who finished third, and ran one of the most consistent and headiest races of the day.

Some New Ones In Accessories

Glade Utility Lights

A HANDY contrivance for the automobile tourist and camper is offered in the Gypsy Auto Light, made by the Glade Manufacturing Company, 209 S. State Street, Chicago. This is a utility light with an extension cord 12 feet long. The light has a specially designed coil spring clasp which holds tightly to the fender or any other convenient place of attachment. As the clasp is rubber-covered it will not mar the surface of an object to which it is gripped. A ball joint swivel permits the light to be turned in any direction. The plug may be inserted into any light socket but preferably into the dash light socket. The reflector is made of brass, nickel-plated and polished. This device is made for all cars and comes in two models. Price \$3.

This company also offers a utility light in its Sho-Me Clamp light. It has a wire cage for protection of the bulb and a 10 foot extension. Like the Gypsy this device is sold without a bulb. The owner should use a double contact bulb for the voltage of the battery of his car. This light has no reflector as in the case of the Gypsy and the price is \$1.50.

"Presto" Switches

THE "Presto" push and pull switch, applicable for use on both automobiles and radios, has been worked out by using two special Fahnestock Wire Terminals. The body part is made of brass which completely covers the contact spring and plunger, keeping the working parts free from dirt and moisture. Dash nut, washer and button are nickel plated and polished. The threaded stems are made of brass in two lengths—the shorter for use on the metal dash board or radio panel; the longer for combination wood and metal or all-wood dash boards.

The shorter switch stem made for metal dash boards and radio panels measures up to $\frac{5}{8}$ in. in thickness, the longer one for wooden dash is $1\frac{1}{16}$ in. in thickness.

These switches are packed in individ-

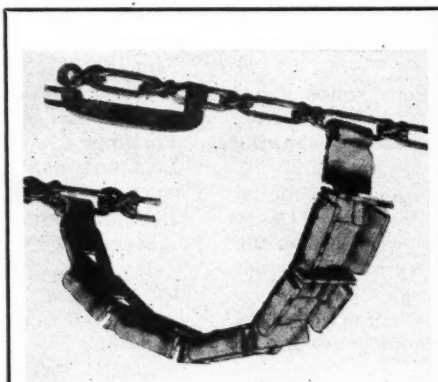
ual cartons, standard packages of 100 and are manufactured by the Metal Specialties Mfg. Co., 338-352 N. Kedzie Avenue, Chicago.

Penn Fender Brace

PENN Metal Stamping Works, 1239 N. Front Street, Philadelphia, is producing what it calls its Penn Deluxe Nickel-Plated Fender Brace for Ford cars. The device is made of brass with nickel finish said to be rustproof. Clips for attaching the license plate are furnished with each brace. The braces are packed 25 to the carton and list at \$2.50 each. The company also offers this brace made of steel tubing with black enamel finish. Such a brace lists at \$1.50.

New Aluminum Piston Line

MCQUAY-NORRIS Mfg. Co., St. Louis, Mo., is now producing a line of aluminum pistons which are factory duplicate in design and material and will be furnished for the big production cars which are equipped with aluminum pistons at the factory. The pistons are placed one set to the carton and will be merchandised in the same manner as other McQuay-Norris products.



Cross section of Neverslip Tire Chains

Acme Dreadnaught Charger

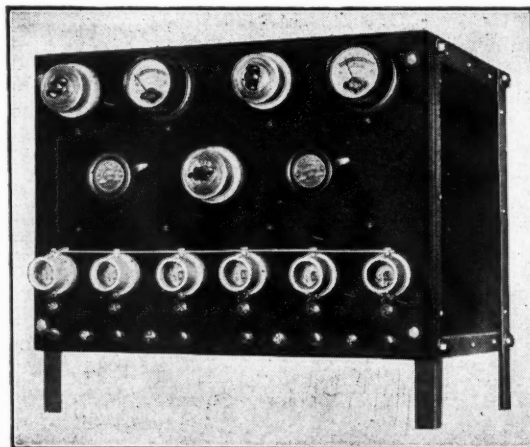
A NEW battery charger of exceptional capacity is announced by the Acme Electric and Manufacturing Company of Cleveland. This new unit, called the Acme Dreadnaught Type A.D.-24, charges 24 six volt storage batteries and six sets of 48 cell Radio "B" batteries at one time. With this charger it is said to be possible to charge automobile batteries and Radio "B" batteries at the same time. It is a bulb type charger supported on an angle iron frame covered with mesh wire. The ammeter, switch and rheostat are mounted on a slate panel. One of the features of this charger is its double winding on the transformer. Another feature of special interest is that it starts automatically on line current interruption.

This is the latest addition to the Acme line of chargers. The Acme line now ranges from the small, "Trickle Charger" for domestic use to this new Dreadnaught for commercial use.

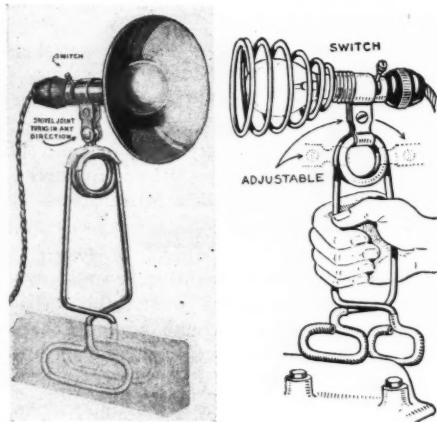
Neverslip Tire Chains

SUPERIOR Metal Products, Inc., Boulder Colo., is getting into production on its Neverslip Tire Chains. These chains embody individual points that depart from usual practices. They have a broad smooth surface next to the tire which is said to reduce wear on the tire to a minimum and which will not chafe the tire even under severe service. The cross section of the Neverslip Tire Chain is of a construction that gives practically a caterpillar tread on the road, gripping mud, snow or ice in a manner which the makers declare is highly satisfactory to the driver. Protection against side skidding is provided through the work of the side toes of the cross section.

The cross sections will fit all makes of tire chains. The Superior Metal Products, Inc., which has just completed construction of a modern factory at Boulder is prepared to give merchandising helps to the trade in marketing this product.



Acme Dreadnaught charger



(Left) Gypsy Auto Light. (Right) Sho-Me Camp Light. Two new Glade products



Presto Push-and-Pull Switch which uses two special Fahnestock wire terminals

The READERS' CLEARING HOUSE

Questions And
Answers



On Dealers
Problems

Common Sense Advice on A Lighting Problem

Q.—We have a Dodge engine belted to a 5 K. W. generator for lighting purposes and as the price of gasoline is advancing I would like to know if it would be possible to run this engine on kerosene.

We have seen Ford engines operating very well on kerosene, increasing the size of the combustion chamber by using 5 extra cylinder head gaskets. This engine runs at 500 r.p.m. and is equipped with a Kingston carburetor model L and has a good hot spot connection.

If you do not think it is advisable to use kerosene can you tell us if it would be possible to reduce the fuel consumption any? If so, how?

At present it burns about 5 gallons in eight hours. The load averages about 3 h.p. or about 1 and one half pounds per h.p. hour. At times the load runs as high as 6 h.p. for about 2 hours and then drops to about 1½ to 2 h.p. for the remaining period. If possible I would like to reduce the fuel operating cost and still use the same engine.—J. B. Galloway, Logan, N. M.

The fundamental difficulty is that the engine has a great deal more available power than you are using. Any power device when only partially loaded is usually rather inefficient and this is the case with the engine in question. If for example you could sell 10 kilowatts of power instead of 5 you would find the cost per K.W.H. would be less. We have two suggestions to offer which are in the nature of experiments. One is to change the belting or rather the pulley diameter so that the engine can turn up one thousand r.p.m. instead of 500. Another suggestion is that at the same time you eliminate pistons and connecting rods in cylinders number one and four, using only the number 2 and 3 cylinders. It would be also necessary to eliminate the valve action in the cylinders not being used and you could probably do this by taking out the valve tappet screws and lock nuts.

This would doubtless give enough clearance so that the valve tappets would not strike the valve stem. The spring would then be used to hold the valve shut continuously. In operating on two cylinders each cylinder would be carrying nearly a full load and by doubling the speed you would get enough fly wheel effect to give fair operation. There will of course be a little more vibration than you are getting at present but we feel that it is worth trying if you have the time available and can make the experiment when load requirements are not heavy.

You could try operating on kerosene with your present equipment which you say has a good hot spot manifold. To do this you should have a three-way

valve which will permit either gasoline or kerosene to flow to the carburetor. The start would have to be made on gasoline and when the engine is thoroughly hot you could turn the valve so that kerosene will go to the carburetor. In stopping the engine it would be essential to turn the valve back again so that at the last running you were operating on the gasoline again so that gasoline would be in the carburetor for the next start.

FELT WASHERS NEEDED HERE

Q.—We have overhauled a Reo Speed Wagon and it now continues to leak oil at front and rear bearings. We have put in new steel oil retainers, but it still throws oil.—Kastner Brothers, Mauston, Wis.

The steel oil retainers do not accomplish anything unless you use a felt washer. These steel retainers are merely for the purpose of holding the felt washer tight against the crankcase. You can get a piece of felt a little thicker than the space between the washer and crankcase and use the steel oil retainers to hold the felt washer in place. We believe that this will overcome the trouble so that you will have no more difficulty with oil leakage.

Two Varieties of Horse Power Explained

In MOTOR AGE at one time you answered a question regarding the horse power of a steam engine and a gas engine. The question probably had reference to the seeming difference between the steam tractor and the gas tractor on belt loads. When the steam tractor was first built it was put out to take the place of the old machine called a "horse power" by which farm machinery was driven. Now by working on a heavy pull a large horse can do work at a rate of two or three times our standard horse power of 33,000 foot pounds per minute and with this in mind the steam tractor was rated at about 1/3 of its actual horse power. The gas tractor, however, was rated at about its actual horse power. The 15 horse power steam tractor then is actually about a 45 horse power machine and if compared with a 22-45 horse power gas tractor you will find them of about equal power in the belt except for the heavy torque of the steam engine at low speeds.—C. M. Hewitt, Head of Automobile Department, Bradley Polytechnic Institute, Peoria, Ill.

The Readers' Clearing House Index

Meaning of numerals; 5-27-26-p24 means that the article was in the May 27, 1926 issue of MOTOR AGE on page 24.

Architectural		
Chevrolet bldg. 50 ft. by 115 ft.	5-27-26-p24	
Garage on triangular lot	5-13-26-p24	
Garage 120 by 162 with large show rooms	5-20-26-p24	
Garage 64 ft. by 132 ft.	5-6-26-p58	
Bendix, cause of sticking	5-27-26-p23	
Buick 1923, replacing clutch plates	5-13-26-p27	
1922, knocks when accelerating	5-13-26-p27	
1924, scores with new block and pistons	5-27-26-p23	
1919 to 1922 crank hard	5-13-26-p25	
Jacox steering gear adjustment	5-20-26-p27	
How to remove transmission	5-20-26-p27	
Cadillac, squeak may mean stuck piston ring	5-13-26-p23	
Vee eight rod adjustments	5-13-26-p23	
Chandler 1917, carburetor wanted	5-6-26-p59	
Chevrolet, acceleration affected by piston weight	5-20-26-p23	
Effect of removing baffles	5-20-26-p23	
Brakes drag	5-20-26-p23	
Rocker arm hits valve cover	5-13-26-p27	
Clutch squeal remedy	5-6-26-p59	
Model K axle, correction on adjustment	5-13-26-p23	
Cure for slipping clutch	5-13-26-p23	
Connecting rods, tubular type wanted	5-20-26-p27	
Continental engine, cause of rods burning out	5-20-26-p25	
Overland generator reduces output when hot	5-20-26-p27	
Dodge Bros. engine, increasing stroke	5-20-26-p27	
Vibration damper wanted	5-6-26-p59	
Electrical		
Amer. Bosch gen., cause of squeak	5-20-26-p26	
Battery charging, important points in	5-20-26-p26	
Battery, motor cycle type, good method of charging	5-20-26-p26	
Buffing wheel, speed needed	5-6-26-p60	
Cadillac 1917, water in distributor	5-27-26-p26	
Charging rate on car, how to determine	5-6-26-p60	
Chevrolet ammeter needle vibrates	5-27-26-p26	
Delco light plant burns plug points	5-27-26-p27	
Dodge, Bosch dual mag., using 6 volt coil on 12 volts	5-20-26-p26	
Ford, high resistance burns out lamps	5-27-26-p27	
Fuse no protection to bulbs	5-6-26-p60	
Franklin generator, poor brush contact	5-6-26-p58	
Generator shorted, to operate without battery	5-27-26-p27	
Ignition testing outfit	5-13-26-p26	
Lincoln generator, field coil explanation	5-13-26-p26	
Mysterious car stoppage doubted	5-13-26-p26	
Overland generator reduces output when hot	5-27-26-p27	
Reo 1918, two wire, changed to one wire system	5-13-26-p26	
Reo 1917 burns out condensers	5-27-26-p26	
Spark current circuit, path of	5-27-26-p26	
Stop light pilot worked with door bell	5-27-26-p26	
Test bench built by reader	5-27-26-p26	
Tungar rectifier explained	5-6-26-p60	
Engine speed	5-13-26-p23	
Essex lopes when idling	5-13-26-p26	
Exhaust noise wanted	5-20-26-p23	
Fiat rate		
Chrysler oil pipe, pump and gage operations	5-13-26-p22	
Oldsmobile steering gear operations	5-20-26-p22	
Ford, burning in bearings	5-6-26-p57	
Ford camshaft unchanged	5-13-26-p27	
Ford clutch, checking adjustment	5-27-26-p25	
Ford timer, ice accumulates in cold weather	5-27-26-p23	
Ford, scored will not idle	5-20-26-p27	
Ford cam testing and shaft testing tool wanted	5-20-26-p23	
G.M.C. truck, wanted to install different engine	5-13-26-p23	
Hudson overheated due to tight brakes	5-13-26-p25	
Hupmobile power curve wanted	5-27-26-p25	
Kissel, reason for blown gasket	5-13-26-p23	
Knocks, how to locate	5-27-26-p25	
Legal		
Car owner's liability	5-27-26-p24	
Selling repairs on credit	5-27-26-p24	
New Jersey lien law	5-6-26-p58	
Montana lien law	5-6-26-p58	
Texas lien law	5-13-26-p24	
Wisconsin lien, possession necessary	5-20-26-p24	
Oakland power curve wanted	5-27-26-p25	
Oil filter, cheap type wanted	5-20-26-p25	
Oil pressure, reason for variation	5-13-26-p25	
Oil rings, three methods of fitting	5-20-26-p27	
Oil in gasoline affects carburetion	5-13-26-p27	
Oldsmobile 1924, use timing gears in sets	5-13-26-p25	
Overland, curing compression knock	5-6-26-p59	
Paint removal process	5-20-26-p25	
Packard six fuelizer	5-6-26-p59	
Pierce Arrow, carburetor trouble or ignition?	5-13-26-p23	
Pistons, oversize, size as compared to cyl.	5-20-26-p27	
Race item, Bob Burman, 1916	5-27-26-p23	
Starter, air type, operating principles	5-20-26-p25	
Studebaker 1922 carb. checking float level	5-20-26-p23	
Stutz 1924 piston pin lock	5-27-26-p26	
Tire wear, reason for	5-20-26-p27	
Truck, pounds, thin gasket to be used	5-6-26-p57	
Valve seats, to restore by welding	5-20-26-p23	
White truck, locking piston pin	5-27-26-p25	
White truck brake oiling	5-27-26-p25	
Wills Sainte Claire valve trouble	5-27-26-p23	
Willys Knight, 70 engine does not fit model 65	5-13-26-p25	

Planning Your New Building

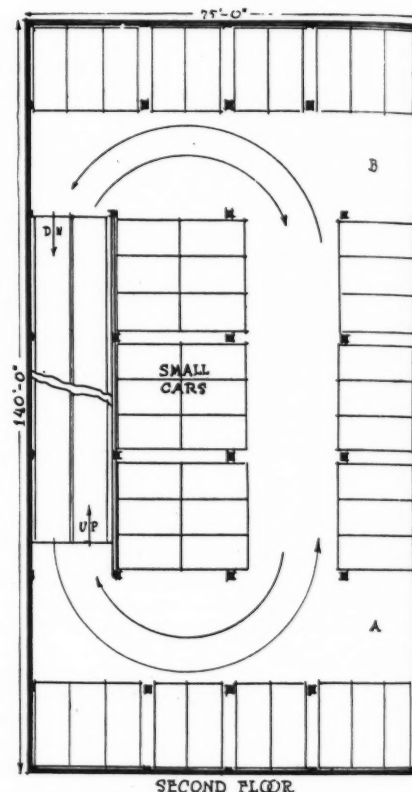
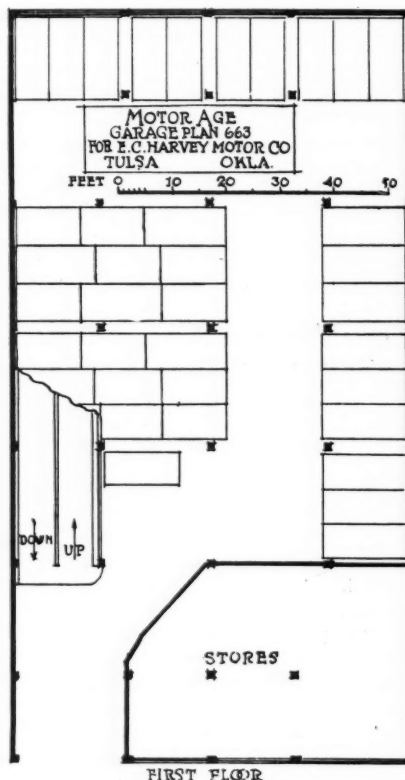
By Tom Wilder

Wants 4 Story Storage Garage with Rebuilding Possibilities

Q.—The writer has noticed in Motor Age plans for garages, sales rooms, etc. We are going to build a four story concrete and brick building 75x100 feet for the storage of cars. This lot being located right in the heart of the city we want to build a building that if this venture is not a success the building could be converted into a general merchandise or department store building. We want three store rooms of equal width and entrance to the garage in the front of the building, the rooms to be sixty feet deep.

The ceiling of the first floor to be fourteen feet, second floor eleven feet, third and fourth floors ten feet. The ramps to go up to use as little space as possible. The only excavating will be enough room for the heating plant, as there is already a brick building on the lot that has suitable side walls and concrete floor for one story. Of course we realize that additional piers and footings will have to be put in to carry the additional load.—E. C. Harvey Motor Co., Tulsa, Okla.

A considerably more efficient arrangement could be made by putting up a building that would be specifically for automobile storage, but since you wish to play safe and make this building adaptable to other purposes the layout we have made is about the best that we can figure out. The floors here are all



It is hardly possible to make the stores 60 ft. deep without ruining the ramp arrangement. Stores in a building of this sort should be a secondary consideration

LEGAL QUESTIONS ANSWERED

By Wellington Gustin

OWNERSHIP OF ABANDONED CAR

Q.—Last November the Constable of this place seized an abandoned automobile on the state highway and put it in my place for storage and since then it has been here. The storage to date has amounted to more than the car is worth. I found that the owner was arrested on a theft charge and released and ordered to leave the state. Now what am I to do with the car? Does it belong to me?—Okeana Motor Sales, Okeana, Ohio.

Owner May Recover

No constable or other such officer has any right to pass title to a car which he does not himself own. The owner of stolen property may recover it wherever it may be found. Of course, you may hold the car for your charges against the world except the real owner, and, as against him, the courts might give you recourse for your care in his behalf, if he does not. And if you are unable

to find the owner, or he has abandoned the car, then you may dispose of it according to the law governing abandoned property. If the one named as arrested for theft was the true owner then you may safely assume that the automobile is abandoned property. But a sale according to the statute is necessary for you to secure title by purchase.

REPAIR SHOP LICENSE

Q.—As I have recently started in business for myself, I would like to have you inform me as to whether a state license is required to carry on a repair business only. No cars stored, and no accessories or car agency at present.—Beebe Auto Service, Poplar, Mont.

I fail to find any requirement of license to operate a repair shop in Montana. You might supplement this by inquiry of your County Clerk.

practically the same, but the ramp from the first to the second floor must be considerably longer on account of the extra high ceiling and the stores at the front of the building take up some space.

On the upper floors the space will take care of forty-seven cars each, with six additional cars at A and B when there is an overflow. These spaces, of course, should be filled only when all other available spaces are occupied. The ramp will be 15 ft. wide, inside measurement and fitted with a division to separate the up and down traffic.

You will undoubtedly find that it will be cheaper and better to tear down the present building and start over again and if you do this you may find that a basement the same as our second floor would be preferable to a fourth floor being nearer the street.

While your present building may be good and well built, by the time you reinforce the walls to carry the extra weight, cut holes in the roof and rebuild it for a floor and tear up the floor in numerous places to build in column footings you will not have much left and what you have will be a patched up job. There is also no way of estimating the cost and contractors will seldom figure a job of this sort.

Answers to Readers' Questions

Power Plant from Ford Engine

Q.—We have a Ford motor which we intend to install as a stationary engine. Can this motor be run without a governor to regulate increase and decrease in load?—E. O. Carlson, Box No. 122, Maple, Wis.

This depends on the service to which the machine would be put. If the load will vary considerably it probably would be profitable to install a governor to give better gasoline economy.

Q.—Can it be run three hours a day at a speed of 1400 r.p.m.?

For long life it is not recommended that the engine be run as fast as mentioned for such a long period. We would suggest that the engine be run at not more than 900 to 1000 r.p.m.

Q.—At 1400 r.p.m. what horsepower (belt horsepower) is developed?

The Ford model T engine according to power curves in this office, develops its maximum of 19 horse power at 1400 r.p.m.

Q.—Would it be advisable to equip engine with water pump?

This will depend on the load placed on the engine. If it is not to be loaded to the capacity you probably can get by without using a water pump.

Q.—Would it make any difference whether you put the drive pulley in front or in back of transmission housing?

It would be much easier to install a drive pulley in the rear although there are objections to that method of installing. Regardless of whether you install it in the front or rear it will be necessary to use a countershaft so that there will be no side thrust placed on the crankshaft or transmission rear shaft, in case it is mounted at the transmission end. If you wish to use the engine for stationary work exclusively you could remove the low speed and reverse portion of the transmission and use the drums only giving a direct connection from the flywheel to the drum, eliminating entirely the reduction gearing.

Q.—If a governor is necessary will you kindly advise where one can be procured?

A list of governor makers will be supplied you by special letter.

REGROUNDING CURES THE KNOCK

Something over a year ago I wrote you about a knock peculiar to (—) when the motor was idling at low speeds. This knock is about as loud as loose push rods but somewhat duller in sound. Well to say that I was lost is putting it lightly as I positively had no idea what it was as I had tried and asked everything and everybody. Finally I happened to be in a grinding station in a neighboring town where they have a (—) grinder and they suggested that I bring one of

the worst ones over to them. So I decided to pay \$56.00 once and took the cylinder block from one of the worst ones to them and the mystery was solved. It took .030 in. to clean up the bore for while the worst cylinder was only .008 in. larger at the top than at the bottom it took the remaining .022 in. to just make the bore square with the crankshaft. That engine has been run over 6,000 miles and still runs as quiet as the week after it was reground.—Kelly Motor Company, Buckhannon, W. Va.

RACING 15 YEARS AGO

Q.—I have heard many confusing accounts of what the Firestone Red Wing did at Indianapolis but no two stories are alike. According to the speedway programs of 1911 Lee Frayer was running in 13th place at the finish and in 1912 Rickenbacker went out at 44 laps. Some said the Red Wing ran in third place for many laps and lost out through poor pit management. Can you clear this up for me by looking up the 1911 and 1912 Motor Age accounts.—M. Saylor, 538 E. Fulton St., Columbus, Ohio.

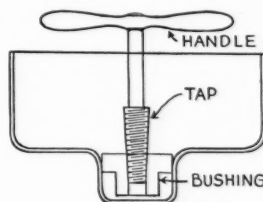
In examining the 1911 and 1912 issues of Motor Age covering the race we find that the Firestone Columbus driven by Rickenbacker finished in 11th place in 1911. According to this account no mention was made of it ever being among the leaders. In the 1912 race the Firestone Columbus driven by Rickenbacker was eliminated in the 44th lap with a broken valve.

SHOP KINKS IDEAS

That have been Found Useful

Jacking the Bushing Out of the Bracket

To remove bushing on commutator end of Ford starting motor take $\frac{5}{8}$ U. S. S. taper tap and screw into bushing. When tap strikes bottom of hole bushing will be drawn out.—G. F. Starrm, Plateville, Colo.



Readers of Motor Age are invited to submit ideas that they have found useful in doing some particular service job in the shop in a better or quicker way. For each one published \$2.00 will be paid. Whenever possible the idea should be accompanied by a sketch or diagram from which a drawing can be made.

Reader Wants Books on Electricity

Q.—Advise me where I can get some real good books on Elementary Electricity, give name of books also.—Gerald F. Hoffman, Princeton, Ill.

Any of the elementary physics books are a good source of information on the theory of electricity. One we have in mind that is compiled for easy reading is Practical Physics by Black & Davis published by the Macmillan Company, Chicago, Illinois.

Q.—Explain best way to remove the old valve guides from an Overland 83 and put in new guides.

The removal and installation of valve guides in the model 83 Overland is not different fundamentally from any other engine. It will be necessary to withdraw the guides from below and a bolt and piece of pipe or bushing larger than the outside diameter of the guide will suffice to pull the guide from the cylinder blocks. The same bolt and nut with the bushing will serve to bring the bushing into position. To extract the guides or bushings the head of the bolt should be small enough so that its outside diameter is less than the inside diameter of the hole in the block which takes the valve stem guide. With the head of the bolt on the top of the guide inside of block, insert a piece of tubing larger than the outside diameter of the guide at the bottom, and put a series of washers on top of this tubing, screw the nut onto the bolt and turn out the guide. A bolt with S. A. E. thread and one with a nut that is fairly tight will work best.

PINS OR RODS TO BLAME

Q.—I have received a good many helpful tips from your Reader's Clearing House but am up against a job that no one so far has been able to figure out. The car in question is a 1923 Buick four. The speedometer shows between 4000 and 5000 miles when knock was first noticed. We removed the cylinder head and found the fourth cylinder scored. We honed out the score marks put in oversize piston and rings, ground the valves but when the job was assembled the knock remained. Have tried putting heavy oil on timing gears, on each piston separately, increasing the spring tension on various lower push rods, all with no effect. The heavy metallic rap occurs every other revolution, just as No. 4 exhaust valve closes with spark retarded. Holding this valve open brings a double rap. When spark is advanced rap occurs as No. 1 exhaust valve closes, but acts the same way.—C. A. McCaffree, Hampton, Iowa.

Look for loose piston pins in this engine. If heavy oil placed over the pistons did not diminish the noise to any extent it proves that it is not due to piston slap, so that the only two remaining causes that should be looked for are loose connecting rods and loose piston pins. We are inclined to believe that the pin is at fault.

READERS' CLEARING HOUSE

Clearing Up Electrical Troubles

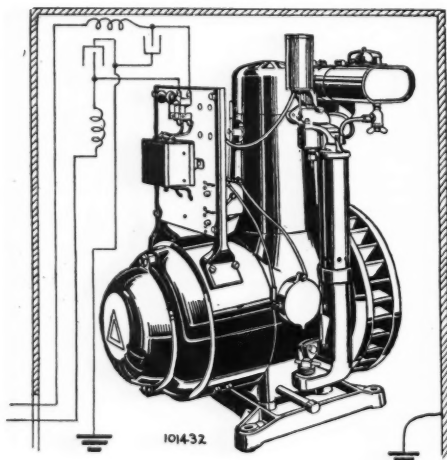
Radio Interference from Lighting Plant

Q.—We are having trouble with a Delco light plant interfering with radio. We get a steady popping noise and believe it occurs every time the breaker points open. Is there any way to overcome this?—Jost's Garage, Prescho, S. D.

It is either caused by the ignition or by sparking at the brushes. One suggestion is to try a piece of flexible metal tubing over the high tension wire which runs from the spark coil to the spark plug. Of course you will not be able to run this all the way for you will have to stop it about one-half inch from the terminal and tape it on to keep it from sliding along the wire and touching the terminal. This piece of tubing should be grounded by a wire securely soldered to the tubing and then connected to a five or six foot iron bar driven into the ground. It should not be grounded to the frame of the lighting plant.

If the trouble is due to sparking at the brushes you may get some relief by the use of condensers. You might try condensers such as would be obtained from Ford coils. Two of these would be connected in series across the line which goes from the lighting plant to the battery and house wiring. The center point of these condensers would then be grounded to the iron bar driven into the earth. You might go a step further and wind up some inductance coils using about 150 turns on a tube $1\frac{1}{2}$ or 2 inches in diameter and 2 or 3 inches long.

These would be connected as shown



Suggested connection of condensers and coils to reduce radio interference

in the sketch and both coils and condensers would be used. In making coils of this kind wire should be used which is about as large as the wire going from the lighting plant to the battery. As a last resort you might try a sheet metal

Edited By A. H. Packer

cover which would cover up the whole lighting plant. It also should be grounded. The purpose of the shield over the high tension wire or over the whole plant is to prevent the wiring of the lighting plant acting like an aerial and sending out interfering waves.

CHARGING MORE BATTERIES

Q.—I was interested in your answer to the Johnson Service Station of Hochheim, Texas, and note that you claim only six batteries can be charged at one time. We have been using Delco battery charging and we find that from twelve to sixteen 6-volt batteries can be charged at one time by having four separate lines and from three to four batteries on each line. I am enclosing a circular from Ward Leonard which will make this clear. I have mailed one of these to the above service station and hope it will be of help to them.—Geo. M. McKnight, Renick, W. Va.

Your contention is perfectly correct and there is absolutely no limit to the number of batteries that can be charged at one time. What we were referring to was the number that could be charged in series, for with 32 volts available, five 6-volt batteries would be about the limit. Assuming, however, that you wish to draw 40 amperes from the battery of the lighting plant and wish to have 10 amperes flow through each battery, then you could connect up four parallel circuits in each of which there would be five batteries.

Where the charging current is limited, however, we reach a point where it does not pay to add additional lines of batteries. For example, if we should draw only 10 amperes from the lighting plant and put on so many batteries that we can only send five amperes through each circuit then we have about doubled the time it takes to charge a battery. Up to this point, however, increasing the number of charging circuits will be effectual.

A CAR THAT HESITATES

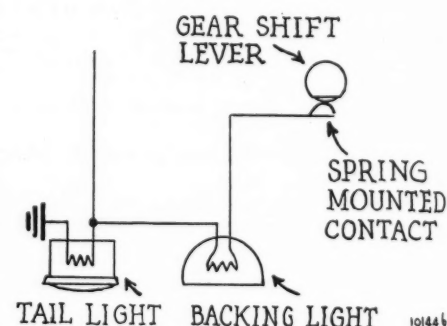
Q.—We find that on the 1924 and 1925 model Buicks that in almost every case when the car is new there is a slight "hesitate" just as if the ignition were switched off and on again, almost instantaneously. This occurs at no particular time and place and is usually found on new cars only.—S. W. McKenzie, Falt & Co., Bellingham, N. S. Wales, Australia.

We believe that the condition of the ignition points is responsible for they have not yet worn to a seat where they make good clean contact. You could tell if the trouble is due to ignition or not by checking the spark with engine idling, having it jump a gap of about $\frac{1}{8}$ in.

Method of Installing a Backing Light

Q.—We wish to install a backing light on a 1926 Buick. Please supply wiring diagram that we can use so that the backing lights will operate only when the other lights are turned on and the gear shaft lever is in the reverse position.—Fred Schuman, 117 W. 16th St., Cedar Falls, Iowa.

The diagram is shown in accordance with your request. It will be necessary to use a double contact backing light. One contact will connect to the tail light terminal which is connected to the lighting switch. The other terminal of the backing light will go to a spring mounted contact which must be so located that it



Backing light operates in reverse

will strike the gearshift lever when the gearshift lever is in the reverse position. You will have to put this spring mounted contact on a piece of wood, fibre or other insulated material. On the gearshift lever it would be well to solder a piece of brass or copper in such a position that it will strike the contact on the piece of spring. You will get a good clean connection in this way.

BETTER TO BUY THE RIGHT EQUIPMENT

Q.—Is there any way to convert 110 volt A. C. current into 6 volt direct current to run a 6 volt starter? If there is, please explain.—Symauk Bros., Giddings, Texas.

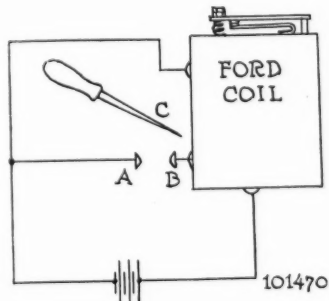
There is no practical way to do this. It would be necessary to have a transformer to change the 110 volt current down to 6 volt current and it would then be necessary to have the rectifier or motor-generator to change from alternating current to direct. The ordinary rectifiers only give out from 6 to 100 amperes current while the starter needs over 100 amperes. One possibility would be to use a constant potential charging outfit, but if you wanted the starter to operate a grinder in the shop it would be much cheaper to buy an A.C. grinder than it would to buy expensive charging equipment merely for this purpose.

Clearing Up Electrical Troubles

Making Ions to Help the Spark Jump

Q.—I am enclosing a sketch showing the way I have tested a Ford coil. If the gap between A and B is so great that the spark will not jump I find that it helps to make the spark jump if a screwdriver is held near the gap. This is true even if the screwdriver is not touching either end of the spark gap. As soon as the screwdriver is taken away the spark will miss, either part of the time or all of the time. The screwdriver is held in one hand and if moved close enough to the secondary terminal you will see a faint spark jump from the screwdriver.—E. W. Brion, Liberty Garage, Liberty, Pa.

When a spark jumps the gap it ionizes



Screw driver affects coil action

the air. This means that the molecules of which the air is composed are broken into smaller particles known as ions and these seem to have the property of carrying electricity. It is on the ionic theory that we explain the action of radio tubes. Accordingly anything that helps to ionize the air will help the spark to jump. When the screwdriver C is held near the spark gap between A and B it forms a condenser for a condenser is merely an insulating material with conductor on either side of it. In this case the insulating material is air and the metal is the blade of the screwdriver, C, while the other metal portion of this air condenser is the spark point B. We then have another condenser between A and C. If the gap is so great that no spark would jump between A and B we find that there is still a very high voltage and there is a difference of voltage between B and C also between A and C. This will charge this air condenser and have a tendency to ionize the air which is in the vicinity. When you hold the screwdriver near the secondary terminal of the Ford coil and see small sparks jumping it is due to the fact that this voltage is puncturing or breaking down the insulation and a charge is flowing to the blade of the screwdriver. Even when no sparks are seen to jump there is tendency for current to flow and a tendency to ionize the air. When this ionized air drifts in between A and B it forms a conducting path across which the spark will jump. It is for this reason

that the Automotive Electric Association has established a standardized test gap in which there is a third sharp metal point which is insulated from the two points used for the test gap, as it is found that more uniform results can be obtained in this way. A description of this standardized test gap is given on page 19 of the March 4, 1926, issue of MOTOR AGE.

DOES THIS 3RD BRUSH MACHINE CHECK WITH THE RULE?

Q.—Please explain why the third brush on Remy generator published on page 27 of the April 15, 1926, issue of MOTOR AGE is connected back of main brush. Armature rotates counter-clockwise. I have noticed in other issues of MOTOR AGE which you state the field should be connected from main brush to the following third brush tracing in the direction of rotation.—Montana Subscriber.

The field winding of this machine is connected from the main brush to the third brush tracing in the direction of rotation, but perhaps you have not properly traced the circuit. If you will look at the left main brush in this diagram you will see that a wire goes up to the upper right hand terminal on the relay. From this terminal the field circuit goes to the left and apparently through a fuse to the lower left hand terminal on the relay. The circuit then goes down to the field coil and through the coil to the third brush. Accordingly this machine checks up with the rule and the field is connected from a main brush which in this case is the one at the left to the third brush and we get to the third brush by tracing in the direction of rotation which is down at the left and then under the armature until we get over to the lower right hand portion of the commutator where we find the third brush.

Compass Test Unreliable On Fordson

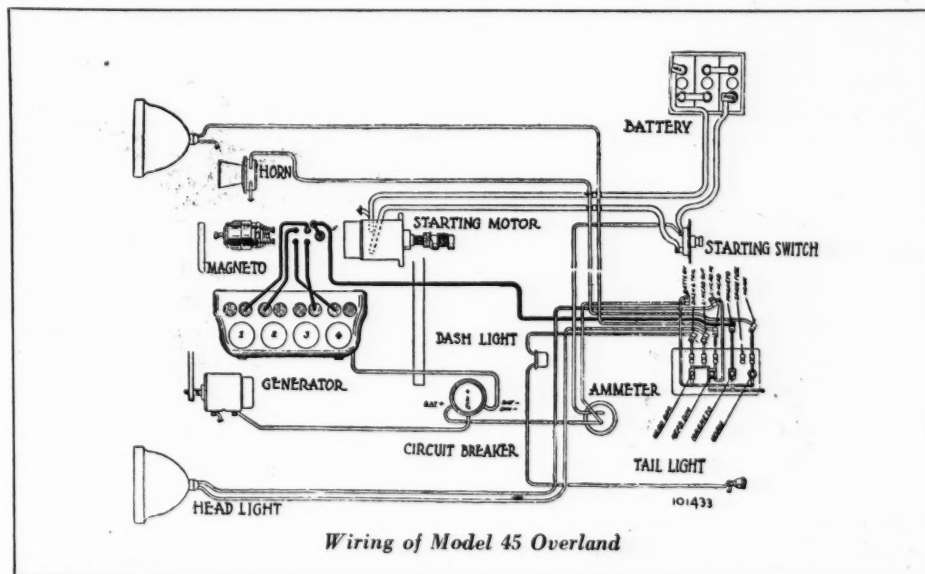
Q.—Can you advise the correct procedure to use in recharging the magnets of a Fordson tractor? Can the correct position of the magnets be located with a compass from any given point as on a Ford car?—Welty & Morke, Washburn Battery & Tire Shop, Washburn, Wis.

There seems to be so much shielding effect from the flywheel housing of the Fordson tractor that compass indications cannot be obtained. At least we have been unable to get any definite indications that would be worth anything and have heard of no MOTOR AGE readers who have been able to test, using a compass. If the engine is very free it might be possible to use a 6 or 12 volt battery connected from the terminal to ground, especially if the engine can be rocked back and forth. Theoretically the flywheel should stop in the correct position, the north pole of one of the permanent magnets being attracted by a south pole, produced by current through the magneto winding. In actual practice it may be found that there is so much friction that this method is not reliable, although theoretically correct. We are accordingly somewhat doubtful as to whether this method can be safely used, but would appreciate hearing from subscribers who have made experiments along this line.

WANTS SOME 1916 CIRCUITS

Q.—Would like to have wiring diagram of model 45 Overland. This model has independent ignition switch on the left of the steering column and the switch on the steering column controls the lights and horn.—Geo. M. McKnight, Renick, W. Va.

The diagram requested is being published and a copy is also sent you by letter.



Wiring of Model 45 Overland

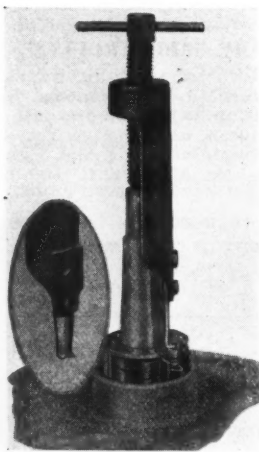
Some New Shop Suggestions

Handigrip Spray Gun

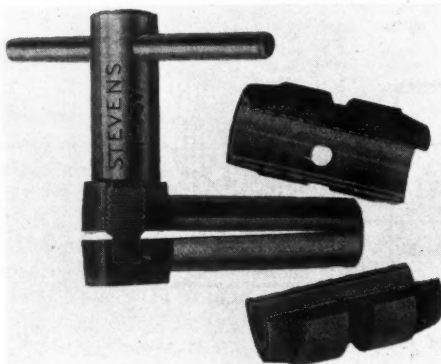
The Handigrip spray gun made by Plummer-Huff Co., Napoleon, Ohio, sells for \$35 and can be attached to any air compressor. A water and oil separator must be used in the line of course. It can also be used with kerosene to clean engines, transmissions, differentials and similar parts. The Handigrip water and oil separator effectually separates oil and water from the air, eliminating any possibility of a job being spoiled by drops of water. An oil reduction valve holds the pressure constant and conserves air supply. The separator with regulator, gages and tank, also is priced at \$35.

New Temco Feature

Losing the chuck key has been a constant source of annoyance as well as a waste of time to the mechanic using a portable electric drill. The Temco Electric Motor Company, Leipsic, Ohio, has developed a simple, practical way for keeping the chuck key always on the drill but never in the way, eliminating the delay and expense incurred in hunting or replacing the lost key. A brass holder or clip attached to the housing of the drill holds the chuck key firmly in place, ready for instant use but never in the way.



(Left) — Stevens rear axle roller bearing pulley.



(Below) — Stevens camshaft bearing splitter

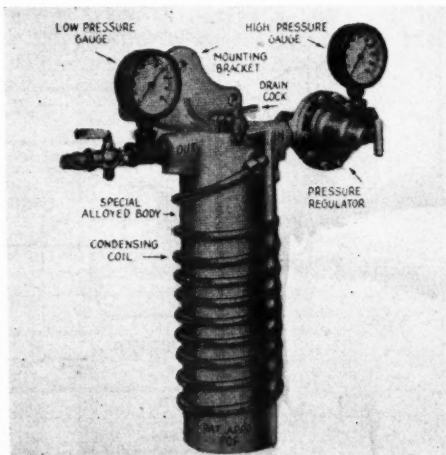
New Stevens Ford Tools

Two new devices to save time and labor in work on the Ford car have just been announced by Stevens and Company, 375 Broadway, New York City, as additions to the "Speed-Up" Tool line. These are a rear axle roller bearing puller and a camshaft bearing splitter.

The roller bearing puller has a steel toe which is hooked under the edge of the cage and gets a solid grip on the bearing so that a few turns of the screw against the axle cause the bearing to pop out.

With the Stevens splitter, the Ford camshaft bearing splits into halves. The tool exerts a uniform outward pressure against the bearing to eliminate any danger of damaging the finished babbitt surface.

The Stevens' rear axle roller bearing puller has a weight of fourteen ounces and is priced at \$1.50. The Stevens camshaft bearing splitter weighs one pound and will be sold for \$1.75.



(Top Center) — Handigrip spray gun. (Bottom center) — Handigrip attachment for separating oil and water from air

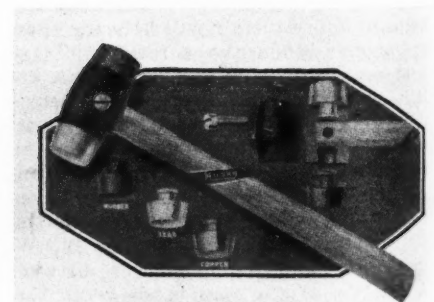
Husky Soft Tip Hammer

Interchangeable tips of rubber, lead, copper, composition, etc. are provided for the soft tip hammers manufactured by the Husky Wrench Co., Milwaukee, Wis. These hammers are made in two sizes, 2 and 4 lb., and the head is said to have sufficient weight to eliminate the tire-some rebound when using a resilient tip. The tips are held in the recessed halved head. The halves of the head being held together by a standard fillister head escrow and the design is such that the tips can not come off unless the screw is removed.

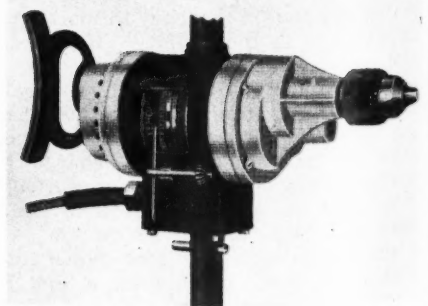
"Inertum"

Inertum, a gas, overcomes the deficiencies of common air, it is said, as it permeates through rubber 2.56 times slower than air oxygen and 13.58 times slower than carbon dioxide. It has no aging or oxidizing effect upon rubber, and its elasticity under pressure makes for considerably more resiliency.

The gas is non-combustible, non-heating, harmless if breathed, and is inexpensive. It is bottled in steel cylinders at 2,200 lbs. pressure. After passing through a reducing pressure valve it is available for tire inflation, greatly prolongs the life of a tire and overcomes the continual chance of running a tire under-inflated. The first Milwaukee service station has been opened at the Milwaukee Tire & Supply Co. P. C. Avery, Milwaukee, Wis., is the producer.



Husky Soft Tip Hammer



Temco Drill with new feature

What About Putting Real Merchandising Effort Behind *the* Flat Rate?

MUCH has been said in MOTOR AGE concerning the necessity of selling the public on the soundness of the Flat Rate theory and likely it will be some time before conditions will warrant us in dropping this phase of the subject. Flat Rate must be merchandised and in its favor is an abundance of argument for use to this end.

The shopman who has made a thorough study of this subject and installed a Flat Rate plan of operation is well informed as to its merits from the standpoint of the automobile owner—but the owner is not so nicely posted and until the case is intelligently and clearly presented to him, showing him just where he benefits, this system to him will only have an obscure significance.

When it is said that Flat Rate should be merchandised it is meant real, aggressive promotional effort should be put behind it the same as the automotive merchant would campaign for public notice of any other element of his business which he regards as a form of superior service or trade inducement.

A series of impressive advertisements or mail campaigns featuring Flat Rate and going straight to the car owner with the argument can be easily prepared by the dealer and in many of the communities where Flat Rate seems to be slow taking hold such efforts no doubt will produce the same pleasing results observed in other localities where the public's reception of Flat Rate was not immediate.

Where Persistence Wins

Where Flat Rate is firmly established it frequently is noticed that its popular acceptance by the public was brought about through intense educational campaigning by the dealer. Often he had a poor start with it, the reaction of the public not being at all encouraging, but by freezing persistently to the system and continually hammering away to sell it he finally won his fight.

And when such a fight is won the dealer has banished one of his largest shop problems, at the same time paving the way to increased profits over future years. One dealer who installed Flat Rate after long deliberation remarks that he finds it much easier under this plan to retain the steady patronage of customers. Misunderstandings developed under the former arrangement caused many a break in the continued patronage of owners, whereas now these defections are relatively low. By rendering a high order of service in the shop, doing everything possible to cultivate customer-satisfaction and being able to put a flat price on every job brought in so owners will not be jolted with a bill larger than anticipated this dealer is holding the same patronage month after month and year after year.

With this steady shop patronage in his favor he also has repeat car sales nailed to the mast while the situation enables him to make profitable disposal of a good volume of accessories.

One thing the wise automotive merchant strives for today is the development of the greatest possible number of time-after-time customers.

Flat Rate, properly managed and properly merchandised is one of the most powerful effectives that could be employed for that purpose.

But it must be sold. The shop must get behind it with aggressive publicity campaigning and not let up until it is well established that the car owning public has been won over.

Not long ago a dealer who had installed Flat Rate, later to cast it aside, made this remark:

"Well, it simply won't go in this town. So we dropped it."

He was asked what measures had been taken to sell it to the public and he frankly admitted that no special effort

put in in a slipshod manner and like a waif of the streets permitted to care for itself. Undernourishment was what killed it.

The peculiar thing about this situation is that in a neighboring town where general conditions are much the same as in his town and where the people are much like the people of his town—there is a Flat Rate shop that is going strong. It all depends on how you go about a thing.

Proof of the Pudding

Proof of the value of Flat Rate to the shop is found in its accomplishments.

In this connection it might be said that MOTOR AGE recently has received a great many letters from members of the trade indicating their shops were not put on a profitable basis until Flat Rate was installed.

A survey developed that more than half of 146 automotive merchants experienced difficulty in bringing the shop to a profitable basis until after period of considerable grief and hard sledding.

FLAT RATES			
for			
Cleveland Valve Operations, Continued			
Motor Age's Flat Rate Forum No. 67			
Manufacturers' Official Designation		Ov.	Time Sp. St.
1869 Renew both rocker arm assemblies (incl. valve adj.)	R & R	2	
1870 Renew one rocker arm assembly (incl. valve adj.)	R & R	1	
1871 Renew one rocker arm only (incl. valve adj.)	R & R	1 1/4	
1872 Renew one valve lifter cluster bracket	R & R		1/2
1873 Renew each additional rocker arm	R & R	1/8	
1874 Renew one valve adjusting screw (incl. valve adj.)	R & R	1/4	1/2
1875 Renew each additional adjusting screw (incl. valve adj.)	R & R	1/4	1/2
1876 Renew set of valve felt washers	C & D	1/4	1/4
1877 Install set of double valve springs	R & R	1 1/4	
1848 Install set of valve spring washers (to increase tension)	R & R	1	1 1/2
1879 Install set of valve spring washers (to increase tension)	C & D	1/2	1/2
1880 Renew one inner or outer valve spring	R & R	1/2	1/2
1881 Renew one inner or outer valve spring	C & D	1/4	1/4
1882 Renew one valve spring retainer pin	R & R	1/4	1/4
1883 Renew each additional valve spring	R & R	1/4	1/4
1884 Renew each additional valve spring	C & D	1/8	1/8
1885 Renew one rocker arm shaft	R & R	1 1/4	
1886 Renew one rocker arm shaft	C & D	3/4	
1887 Stone cams of rocker arm mechanism		1 1/4	
1888 Eliminate oil leak from rocker arm assemblies		1	

had been made at all. He also admitted that the foreman of the shop could not "quite get the stuff through his head."

There it is. A sample representing, no doubt, numbers of other cases throughout the country. Mistake No. 1 was that the shop was handicapped with a foreman who was unable to grasp the subject and if he could not "get the stuff through his head" there was little hope he would be able to impress the customer with the value of Flat Rate. Mistake No. 2 was in making no effort to merchandise Flat Rate. It was simply

Every here and there in these returns Flat Rate looms up as the device which finally made profitable progress in the shop an actuality.

If we would canvass the field closely we likely could find many other automotive merchants who would speak thus glowingly for Flat Rate. Those to whom we refer above paid tributes to the Flat Rate system without being asked specifically about it. If you haven't installed Flat Rate it would be well to think about it, and if you do install it don't fail to merchandise.

Sounding the Call of the Open Road

Open Road Week in San Francisco Spices Lure of the Great Outdoors

EACH year "Open Road Week," as observed in San Francisco serves to call particular attention to the opening of the big touring season and provides car dealers with the opportunity for some effective window displays. The accompanying photograph shows the window display arranged for "Open Road Week" this year by George Campe, Inc., Chrysler dealer at 1230 Van Ness Avenue, San Francisco.

A mountain stream flowed down the center of the show room to a pool in the front window which contained several live trout. A Chrysler 58 coach was shown with a comfortable camping bed made up inside, and with fishing rods, gun and other camping equipment.



Window Display of George Campe, Inc., for "Open Road Week."

Breaking in the New Car

TO break in a new car, or one in which the engine has been fitted with new pistons, in a few miles of driving so that it may then be run safely at maximum speed, is the accomplishment claimed for a new friction reducing material being marketed by the Anti-Hot Box Co., Princeton, Ill. The material is used to treat the oil and grease put in the car. It is claimed that a new car lubricated with this treated oil and grease will quickly acquire free action of all parts without any injury to the close fit. One treatment with this lubricant is said to be effective for 5,000 or more miles of driving with only ordinary lubricants being used after the

original treated oil and grease has been taken out.

In a test made in Chicago recently by W. O. Stevens, representing the manufacturer, a new Dodge Brothers deluxe sedan was driven first with plain lubricant and then with treated lubricant. With plain oil the car accelerated from 10 to 25 m.p.h. in 12.15 seconds and with treated oil the same acceleration was accomplished in 10.85 seconds.

With a flowmeter showing a consumption of one gallon of gasoline per hour an increase of 11.5 per cent in mileage, when operated with treated lubricant as compared with miles when operated with plain lubricant, was recorded.

About the First Superchargers

To the Editor of MOTOR AGE:

In my paper on superchargers, presented to the Society of Automotive Engineers at their meeting in Detroit, it was stated that the first use of superchargers on racing cars was made by European engineers. This statement was questioned at the meeting by Mr. Duesenberg and also by letter from Mr. Leo W. Oldfield, of Chicago.

A diligent search with the assistance of the MOTOR AGE staff and the staff of

Automotive Industries failed to disclose a description of the installation, however, in Oct. 30, 1913 issue of the MOTOR AGE, in answer to an inquiry from one of their readers, asking for a diagram of the Chadwick carburetor showing how the pressure was obtained on the mixture, they say, "a diagram is not obtainable from the Chadwick factory as this type is no longer manufactured. The system, however, used a three stage centrifugal blower between the carburetor and the cylinders. The blower was driven by a belt around the flywheel and operated at six times crankshaft speed."

I believe the above is sufficient evidence

to prove that the Chadwick car used a supercharger in racing before it was used in Europe.

I am very glad to be able to make this correction and thank Mr. Duesenberg, Mr. Leo W. Oldfield, and especially the MOTOR AGE and Class Journal staff, who assisted in unearthing this information.

(Signed) CHAS. R. SHORT,
Chief Engineer Mechanical
Engineering Section,
Research Laboratories,
General Motors Corporation.

Beane Self-Adjusting Tire Flap

An important development in the tire field has been recently announced by the Beane Rubber Co., Inc., of 117 W. 46th St., New York City, in the form of a self adjusting tire flap. This flap which is featured by its ability to lengthen or shorten without pinching the inner tube has been under test for two years and three tire companies, the Kelly-Springfield, Dunlop and Lee have adopted it for manufacture under a royalty basis.

The self-adjusting feature as will be seen by reference to the accompanying illustration is secured by allowing the ends to slide over each other, the flap ends being retained in alignment by two loops which are so fitted as to permit free movement while allowing of no mis-

(Continued on page 38)

EDITORIAL

The "Straight Line" to Sales

LETTERS received by MOTOR AGE indicate the coming of greater attention on the part of automotive merchants to systematic market analyses. Several prominent dealers who have practiced such surveying on more or less moderate scales in the past tell us they are going into this work hereafter more exhaustively and thoroughly.

One large distributing organization is planning to employ the results of market analysis as a standard for determining territorial values. In addition to appraising the theoretical worth of a dealer's territory by this method the analysis will bring forth excellent lists of possible buyers for the prospect files.

While the market analysis does not offer entire accuracy for yard stick purposes, sufficient accuracy for theoretical application is within the pale of accomplishment when the operation is intelligently carried out.

It is capable of developing reasonable gages on which to base more thorough coverage of selling opportunities—and without a doubt, it serves to find shorter routes to persons who are actually in the market for the dealer's products.

The purpose of a market analysis, anyhow, is to find that shorter route to possible selling opportunity. It is the "straight line" that we want to find, at the same time eliminating much wasted effort encountered when the haphazard plan of prospect seeking is used.

This is an angle of the car selling business which demands real mental effort and as we look over tendencies in the field we see an era ahead wherein market analysis will have a much more conspicuous place in management than ever heretofore.

It is a *science* within the trade that promises to give a clear track to those who treat it as such and buckle down to the job of mastering it. The thinkers are the ones who are to do best in this field and the non-thinker is the one who will find it increasingly difficult to hold on.

Join the *thinkers*. Analyse your market and add to the quality of your prospect files.

Many car owners are inclined to judge a store by its "front." Make it inviting.

Neglected Shop Profits

WHERE a dealer has a poorly equipped shop and incompetent mechanics there is one thing certain: He is not going to advertise the fact. It is a situation of which he is not proud and which he knows will not stand up before the other kind of competition.

On the other hand, if his shop is well equipped and his mechanics are experts in their line his attitude is entirely different. Then he wants the public to know of this superior provision and if he is a promoter he broadcasts information that will tell the story.

All of which stresses again the importance of *selling* the efficiency of the shop.

If it would be bad to suppress information to the effect that the shop lacks efficiency it is certainly a trump to capitalize the possession of a competent maintenance department in promotional efforts.

There are many automotive establishments with excellent maintenance departments that follow the practice too much of hiding their light under a bushel. A good servicing department is the backbone of the dealer's business. Develop it to the fullest score, maintain high standards of workmanship, cultivate owner-satisfaction at every opportunity and a condition is established which makes it possible to increase profits in all departments.

To attain such a development in the shop requires more than merely having plenty of good equipment and good mechanics.

Firstly, it is necessary to let the public in on the secret. Not with an occasional circular or newspaper advertisement, but through constant and consistent campaigning.

The dealer who has this fine asset, yet who makes no special effort to publish the fact and keep it constantly before the owners, logically overlooks a big part of the potential harvest. He is like the farmer who buys fine machinery, plows and plants and then neglects cultivation.

Intelligence is a necessity in selling cars but it is useless without "hard work."

A Field for Clean Sales

FORTY per cent of the farm families still are without automobiles. This suggests a large field for clean deals in the future. One reason so many rural families are without automobiles has been the unfavorable agricultural situation, but that continues to improve and with each succeeding stage of the improvement will be other opportunities to sell cars—and without the necessity of taking old cars in trade. Keep your eye on this gradually developing and expanding opportunity. Besides this 40 per cent of non-owning families there is the 60 per cent already owning cars who are present prospects for automotive business.

A steady customer is worth more to the merchant than the occasional buyer.

Holiday Opportunities

ACCESSORY merchants should not overlook the fact that there will be two three-day week-end vacation periods for many motorists for the celebration of Independence Day and Labor Day. Memorial Day offered another such opportunity but it has passed. With the holiday celebrated on Monday, with Sunday and, in numerous cases, Saturday thrown in—vacationers want to make trips. They will want luggage carriers and other appropriate items. Plan for these displays and campaign to get that business.

Hunt the buyers. Few of them are hunting for you.

APRIL PRODUCTION AHEAD OF MARCH

Corrected Figures Show 455,842 Cars in Month

Totals for first four months
Lead last year by 246,-
251 Vehicles

WASHINGTON, May 29.—April car and truck production, which, according to the National Automobile Chamber of Commerce estimate earlier this month, was supposed to have run 504 behind the 449,677 March total, actually ran 6,165 ahead. The Department of Commerce announces that April production in the United States and Canada was 402,574 passenger cars and 53,268 trucks, a total of 455,842 instead of the 449,173 previously estimated from shipping reports of N. A. C. C. members.

Of the 455,842 units 382,631 passenger cars and 50,272 trucks were made in the United States and 19,943 passenger cars and 2,996 trucks in Canada.

Department of Commerce figures for the United States and Canada so far this year are as follows:

	Passenger Cars	Trucks	Total
January	284,153	32,735	316,888
February	335,639	40,878	376,517
March	339,376	48,705	448,081
April	402,574	53,268	445,842
Totals	1,421,842	175,586	1,597,378

In the first four months last year 1,195,282 passenger cars and 155,845 trucks, a total of 1,351,127 were produced. Passenger car production during the 1926 period gained 226,560 or 18.1 per cent over the 1925 period, truck production gained 19,741 or 12 per cent and the total increased 246,251 or 18.2 per cent.

The 1,597,378 for the first four months this year is 2,717,368 less than the 4,314,746 for 1925. In the first third of 1926 total production was 37 per cent of the total for all of 1925. To equal 1925 total production this year a monthly average of 339,671 units must be maintained for the remainder of 1926. The monthly average up to May 1 was 399,344.

The proportion of truck production to total passenger car and truck output was 11.5 per cent in the first four months of 1925 and declined to 10.9 per cent during the corresponding period this year.

Accessory Men to Meet

ST. LOUIS, May 29.—A mass meeting of accessory dealers and garage men under the auspices of the Automotive Accessory Association will be held at the Assembly Hall of the Chamber of Commerce June third for the purpose of discussing what is the matter with the automotive accessory and supply business and how to change it. Henry Kirkland, assistant merchandising director of the Automotive Equipment Association, will speak on "Making More Money Motor

Merchandising." "Who Are They" is the subject which has been assigned to L. A. Safford, vice-president McQuay-Norris Mfg. Co. and director of the A. E. A. Also brief addresses will be made by Dan F. Hyland, Stewart-Warner Products Co. and George H. Niekamp, vice-president, Beck & Corbitt Iron Co.

Townend Joins Cadillac

DETROIT, May 29.—Brian Townend, for the last nine years of the advertising staff of Iliffe & Sons, Ltd., printers and publishers, of London and Coventry, England, has just come to the United States and joined the advertising staff of the Cadillac Motor Car Company, Detroit. For a number of years Mr. Townend was in charge of the make-up of the advertising sections of the various publications and for five years was in charge of the company's branch office at Coventry. Before entering upon his advertising career, he had a background of technical training and studied at Birmingham University.

New Willys Sedan

TOLEDO, May 29.—Willys-Overland is now in production on a two-door sedan model in the Willys-Knight light six line, the factory price on which is \$1,395.

Peerless Adds Two Body Models and Cab to Line

CLEVELAND, May 29.—A DeLuxe type taxicab of distinctive appearance and two new body models, a coupe roadster at \$1565 and a close coupled four door sport sedan listing at \$1795, have been added to the light six "6-80" chassis by the Peerless Motor Car Company.

On account of the low appearance, color scheme and attachments the coupe roadster is regarded as the most striking in the Peerless line which now comprises 28 different body models. It is finished in two-tone ocean blue silk mohair upholstery to match with the folding rumble seat in brown leather. The close coupled sedan is finished in solid color blue with the fenders and trunk lacquered to match. In the rear quarters landau bows and oval windows are provided, while the interior is upholstered in blue silk mohair. Complete bumpers, nickled headlights and cowl lights and a wide range of additional equipment is included in the price.

Several unusual features are incorporated in the taxicab which is to be sold in competition with other vehicles of its kind. It is provided with a landau folding top, leather upholstery and safety glass partition. A pilot light on instrument board indicates to driver when door latches are unfastened in the passengers compartment while a buzzer is provided so that the fares can call the attention of the driver. The color scheme is cream above the belt with orange below. There is also a complete range of lights for various purposes.

Use of Glass Containers For Selling Oil Is Urged

Recommendations Made at
the National Conference of
Weights and Measures

WASHINGTON, May 29.—Use of glass containers for the sale of lubricating oil at all filling stations; a change in the method of connecting taximeters, changing from the wheel drive method, to transmission drive, and the necessity of motorists insisting on more accuracy in their tank gages and gasoline purchases, were urged before the nineteenth National Conference of Weights and Measures, closing a four day meeting here this week.

The adoption of regulators forcing gasoline filling stations to use only glass containers for selling lubricating oil, was urged by Howard R. Estes, city sealer of weights and measures of Flint, Mich. The present metal containers, if bent, he pointed out, mean short weight. If the quart size is used, he declared, "it requires a trained juggler to fill and carry full, while if a larger capacity container is used, say two quart container, to deliver a quart of oil, the motorist has no means of being assured full measure."

Theodore A. Seraphin, district supervisor, bureau of weights and measures, Philadelphia, declared that his department on check up of complaints of shortage in gasoline purchases by motorist, "proves that nearly half of them are caused by motorist having too much confidence in the accuracy of their tank gage." Other causes for gasoline short weights were assigned as: (1) Operator deliberately short measures the motorist; (2) pump being operated on an empty tank; (3) leaky foot valve; (4) pump out of adjustment, and other conditions which necessitate repairs to pump.

The need for more stringent supervision of gasoline filling stations was cited by M. A. Bridge, sealer of weights and measures of Columbus, Ohio. As evidence of the necessity, he recited a recent test made by his department in Columbus. It showed that out of 24 stations visited, making 24 different gasoline purchases, that 19 were short measured, one was correct and four slightly over measure.

George F. Austin, sealer of weights and measures in Detroit, urged that manufacturers be required to build taxis with transmission drive, as that system of meter registration, he declared, superior to wheel drive. Cab owners in Detroit, he told the conference, had reported that transmission drive for taximeters would save them thousands of dollars annually in upkeep, eliminate cable trouble and the laying up of their cabs during the process of repairs, and at the same time be more equitable to the public.

Indiana S.A.E. Holds Big Annual Pre-Race Dinner

Brisbane, Rickenbacker, Moskovics and Kettering Are Among Speakers

INDIANAPOLIS, May 31.—More than 600 automotive engineers, prominent men of the country and Indianapolis citizens, last night made the second annual Before-the-Race Dinner of the Indiana Section, S. A. E., the most brilliant affair of the section's history and heard four speeches that were very much out of the ordinary.

Arthur Brisbane, noted editorial writer, gave an entirely new twist to what the automotive industry has done for man when he called the engineers and the men of the industry the world's foremost emancipators, who have lifted men out of their ruts, given them broader vision, made their desires expand until they work to have all the things their motor car vision gives them.

Capt. Eddie V. Rickenbacker, vice-president of the Rickenbacker Motor Car Company, kept the audience roaring for more than ten minutes as he got back at toast-master Fredrick E. Moskovics in the early part of his speech when he told some of the early racing history of cars that he and Moskovics piloted. In soberer mood he made prophecies of the wonders to which air transportation would develop when it will carry more economically than steam all the mail, light express and a portion of the passengers with a mile of air service for every mile or railroad track, and with gigantic air liners which will take the air and not land for a year, taking on passengers, freight, fuel, new crews from smaller blimps.

C. F. Kettering, vice-president of the General Motors Corp. gave a brilliant 10-minute talk on the benefits of modern science to the laborer in that it lifts him up, creates a new crop of desires and shows him how to earn them by increasing the production which every man can accomplish. He cited that one American automotive worker makes 10 cars a year while foreign workers make about a thirtieth of a car each. Until world labor gets the slant of American labor and follows the engineer with faith, America will far out-distance all the world not only in production but in the standards of living.

Among the noted guests who sat at the speakers' table were T. G. Little, president of the S. A. E.; Thomas Henry, president of the A. A. A.; Arthur Nutt, chief engineer of Curtiss Aeroplane Company; Charles Guernsey of the J. G. Brill Company; Coker Clarkson, general manager, S. A. E.; C. A. Musselman, president, Chilton Class Journal; Col. Thomas Hetherington, air attache of the British Embassy, Washington; Capt. C. B. Wilson, captain of the British

DUESENBERG AND STUTZ VICTORS IN ECONOMY RACE

LOS ANGELES, May 29.—A Duesenberg straight eight, driven by Joe Bozzani, captured the grand sweepstakes in the tenth annual Los Angeles-Yosemite Valley economy run. The Duesenberg's mark for the 360-mile drive was 50.53 ton miles. A Stutz Vertical Eight, entered in the same class with the Duesenberg, and driven by Benton Trerise, placed second in the grand sweepstakes, second in the class and first in the closed car sweepstakes. The Stutz had for its average 46.59 ton miles.

The grand sweepstakes is determined by the ton miles less 10 points for each pint of oil, and 1 point for each pint of water, divided by gallons of gasoline. The closed car sweepstakes is figured on the same basis.

A Star Four touring car won in the first class and in so doing gained credit for having established the highest gasoline mileage, the average being 29.09 to the gallon. In the second class a Star Six came in for laurels, annexing the cup from Pontiac. The latter had trouble during the first day of the run, which hampered its economy work. A small oil connection became loose immediately after the run had started.

Flint was the cup winner of class three and was a strong contender for high honors in the sweepstakes.

Third in the sweepstakes and second in the closed car running, Franklin was the winner in class 4.

Class five, in which the Duesenberg battled and in which it emerged supreme as well as taking the grand sweepstakes, carried the largest number of machines, four having been entered.

All of the eleven cars that started in the race finished within the time limit on the same evening as the starting day at Fresno, where the first control was checked. All of the cars arrived in Yosemite ahead of time on the following afternoon.

The score table:

Class	Car	Weight	Gasoline	Oil	Water	Miles Per		
						Gal.	T. M.	SW'S
Class 1-A	Star "4" Touring	3050 lbs.	12.375	0.0	10.0	29.09	44.36	43.56
	Star "4" Coach	3110 lbs.	14.375	1.0	1.0	25.04	38.94	38.18
Class 2-A	Star "6" Touring	3200 lbs.	15.250	2.0	0.0	23.60	37.77	36.46
	Pontiac Coach	3330 lbs.	16.125	2.0	2.0	22.32	37.17	35.81
Class 3-A	Flint Coach	3660 lbs.	14.125	4.0	1.0	25.48	46.64	43.74
Class 4-A	Franklin Sedan	4520 lbs.	18.000	1.0	0.0	20.00	45.20	44.64
	Packard Sedan	5110 lbs.	20.875	2.0	12.0	17.24	44.06	42.53
Class 5-A	Duesenberg Touring	5110 lbs.	18.125	0.0	4.0	19.86	50.75	50.53
	Stutz Sedan	5570 lbs.	21.500	0.0	1.0	16.74	46.63	46.59
	Gardner Sedan	4750 lbs.	20.250	2.0	3.0	17.77	42.22	41.08
	Lincoln Sedan	6330 lbs.	35.750	0.0	1.0	10.07	32.03	31.99

Schneider Trophy Team; John Hunt, vice-president of General Motors Research Corporation, and Ralph R. Teetor, new chairman of the Indiana Section of the Society of Automotive Engineers.

New Chrysler Prices

DETROIT, May 29.—Reductions in the price of the Chrysler Imperial Eighty ranging from \$100 to \$400, were announced, today, by the Chrysler Corp. The reductions follow:

Model	Old Price	New Price	Reduction
Phaeton	\$2,645	\$2,495	\$150
Roadster	2,885	2,595	290
Coupe	3,195	2,895	300
Sedan (5-pass.)	3,395	3,095	300
Sedan (7 pass.)	3,595	3,195	400
Sedan-limousine	3,695	3,595	100

Bosch Orders Heavy

SPRINGFIELD, Mass., May 29.—Orders for radio equipment to the value of \$3,000,000 were placed with the American Bosch Magneto Corp. during the three-days convention for distributors in this city, it was announced by President Arthur T. Murray at the banquet which closed the sessions. The offerings include a five-tube set to retail for about \$100, a six-tube set similar to that produced last year, priced at \$150, and a new seven-tube power set that will retail for \$310. The aim of the company, as stated

by W. F. Cotter, radio engineer, is to develop a receiving set that shall operate entirely from alternating current lines.

New Denby Co. Formed

LOS ANGELES, May 29.—The Denby Motor Truck Company of California, a subsidiary of the Denby Motor Truck Company of Detroit, recently announced plans for the erection of a \$200,000 manufacturing and assembly plant in the Central Manufacturing District, Los Angeles to serve the Pacific Coast and handle exportation to Australia, South America and the Orient. The new plant will cover 20,000 square feet. Sidney H. Hale, president of both the parent and the California companies, made a personal survey of the coast and determined upon Los Angeles as the most logical location for the plant.

New Flint Dealers

SPOKANE, Wash., May 29.—The Spokane Auto Company announces the acquisition of seven new Flint dealers, following the return of William A. De Vries, president of the company from a tour of the territory.

The new dealers are Central Garage, Hillyard, Wash.; Preston Motor Company, 807 Second Ave., Spokane, Wash.; Steiner Auto Company, Clarkston, Wash.; E. W. Phillips, Wallace, Idaho; Speddon Auto Company, Chewelah, Wash.; W. A. Atkins, Republic, Wash.; and Hadley Motor Company, Pomeroy, Wash.

Willys Sees Industry In Its Best Position

Manufacturer Believes Business Will Continue on Sound Basis Through the Year

NEW YORK, May 29.—John N. Willys, president, Willys-Overland Co., regards current business conditions as healthy and looks for continued normal development in automobile business. He does not believe that the decline in motor stocks should be interpreted as forecasting bad times for the automobile industry. He points out that retail car sales this spring have broken records and he believes that financial reports of leading car companies for the first six months this year will reveal the most prosperous similar period in the industry's history.

Nor does he see any indication of a drastic falling-off during the last half of the year. He points out that the last half of 1925 unexpectedly turned in a volume of business equal to that of the first half, and he would not be surprised to see business in the last half this year comparing favorably with the first six months. He continued:

"All companies are not participating equally in this prosperity, which is a reflection of the keen competitive conditions which prevail, but plenty of fair and healthy competition is keeping the industry on its toes, with its financial house in order, to meet any emergency that may arise. I think the situation in the industry is the soundest it has ever been. The industry is handling the largest volume of business entirely on its own resources without borrowing from the banks, and certainly all of the large companies are in comfortable financial position.

"While some companies are operating on lower production schedules than earlier in the year, others are still operating at the peak. Willys-Overland is one of the companies that has recently increased its output and plans still further increase in June. Our current outputs is at the rate of between 17,500 and 18,000 cars a month, all in the six-cylinder class. The new Willys-Knight 70 is averaging 400 cars a day, and on this particular model we are far behind on orders and planning to increase output to 450 cars a day.

"Signs of keen competition in the industry have stimulated a great deal of conjecture on the price situation, but I do not believe that competition is wholly a question of price. While price reductions stimulate a great deal of attention, and some manufacturers have the erroneous idea that the only way to get business is by reducing prices, I know of some instances where producers this spring, maintaining quality standards, have advanced their prices and gotten a larger volume of sales than ever before."

Brockman Tells Progress

ST. LOUIS, May 29.—Phillip H. Brockman, president of the De Luxe Automobile Co., Oldsmobile distributor and former president of the St. Louis Auto Dealers Association, in a recent address before the Traffic Club of the Chamber of Commerce told of the enormous proportions to which the automobile industry has grown and discussed the problems of car maintenance and trade-ins of used cars, emphasizing the fact that the net profit of the automobile dealer is far smaller than in other lines of business. Brockman said he believed the demonstrating of automobiles would be done away with and that dealers would be forced to cease accepting used cars as down payments on new automobiles. He also predicted the introduction in the next few years of cars much smaller than those now in use, declaring they would be necessitated by increasing street congestion.

Battery Men to Meet

NEW YORK, May 29.—O. B. Towne, commissioner, announces that the annual meeting of the National Battery Manufacturers' Association will be held June 25 and 26 at the Roosevelt Hotel in New York City.

Moon Adds "Coronado" Roadster to Its Line

ST. LOUIS, May 29.—Moon Motor Car Co. announces the addition of the Coronado roadster to its line. The chief distinctive feature of this new model is the color combination which is of sea-blue green and ivory. The offset panel on the hood and cowl is called the Lance-Head.

All instruments are grouped under a single nickel-framed glass oval which is lighted by non-glare lighting system. Remote control of lights through a lever on the steering wheel column is a safety feature. Fenders, running board aprons, splash aprons, tail light, gas tank cover, tire carrier, hood latches, hood handles, headlamp brackets and license brackets are finished in sea-blue green.

Headlamps and cowl lights are finished in sea-blue green with nickel rims. The lower body panels are finished in ivory with a stripe of maroon to contrast the striking duotone of sea-blue green and ivory. Disc wheels are also finished in ivory with maroon striping.

The Coronado is equipped with three cowl vents, one on top and one on each side of the cowl to give better ventilating facilities. The cape top, which is entirely removable, is finished on the outside in black and on the inside in khaki. Back and seat cushions in both the front and the rumble compartments, which are finished in a mottled design of genuine leather, are deep and add to the comfort of the passengers. There is a golf or luggage compartment with let down door which forms a step into the rumble compartment, giving a total capacity of five passengers.

Columbus Sales Hold Up With Improved Weather

Business in General About on Same Level with April This Year

COLUMBUS, O., May 29.—With weather conditions very much improved over a month ago, sales of new cars in Columbus and central Ohio territory are holding up quite well as a rule. Business is not far above that of April, however, which is attributed to the general industrial let up which is reported from many sections.

In some instances sales of new cars are 10 per cent better than in April and in some instances they are not quite up to the April record. Thus in generalizing, it is found that business on the whole is only slightly better than in April. Compared with May of last year, practically all dealers report an increase, amounting from 10 to 15 per cent.

Prospects for the future are not as good as was the case a month ago. Business conditions generally are not as good and there is increasing unemployment. Dealers and distributors look for considerable sales resistance during the summer months because of that fact. Cars ranging in price from \$600 to \$1600 are selling in largest volume, although many sales of higher priced cars are being made.

One of the best features is the fact that a slightly better feeling is developing in agricultural circles. Crops have been fairly good and farmers are expecting good crops this season. These facts have caused more interest in farming sections in the purchase of automobiles and dealers report better sales.

Used car business has improved with better weather. Special sales efforts were made by most dealers which had large accumulations of used cars and the result is generally good. Used cars in the hands of dealers are less than a month ago.

Closed models are becoming more popular and sales now range about 75 per cent closed and 25 per cent open models.

Ohio Gas Tax Receipts

COLUMBUS, O., May 29.—The two-cent gasoline tax in Ohio produced approximately \$12,000,000 or \$1,000,000 per month for the first year it was in force, according to a recent statement of the Ohio Tax Commission, which is charged with the collection of the tax. The net receipts up to April 18, which is the end of the year was \$11,945,346.54. This is approximately what the tax was expected to produce and that amount will go towards road construction and maintenance. The total gross receipts were \$12,165,346.54 but refunds of \$220,000 were made to users of gasoline for other purposes than the operation of motor vehicles.

Parliament Passes Car Tariff with Amendment

New Form of Act Is Given to U. S. Officials Pending Canadian Senate Action

WASHINGTON, May 29.—Amendments made to the new Canadian tariff import duties on automobiles, parts, etc. passed on April 15, were acted on by the Canadian Parliament May 22, and officially reported this week to the tariff division of the Department of Commerce by Trade Commissioner W. J. Donnell, at Montreal.

The amendments provide that chassis, tops, wheels, and bodies for automobiles and trucks, shall be subject to the same rate as automobile and trucks as a unit, which is 35 per cent ad valorem, when imported from the United States.

Chassis for all other motor vehicles, including automobiles, are subject to the same rate as that applying to the vehicles on which they are to be used. If used on passenger cars, valued at retail at not more than \$1,200 each, or on motor trucks or motor cars for carrying goods only, the rate from the United States is 20 per cent ad valorem. If used on automobiles and motor vehicles not specified the rate is 27½ per cent ad valorem from the United States.

The following parts, if of a class or kind not made in Canada, and when imported by the manufacturers of automobiles and motor vehicles for use only as original equipment in the manufacture of such vehicles, are admitted duty free: horns, distributors, ammeters, instrument boards, lamps, oil gages, gasoline gages, thermostats, oil filters, carburetors, purifiers for oil, purifiers for air clocks, monograms, metal and enamel, annular ball bearings, lock washers, speedometers, and parts thereof, vacuum tanks, gaskets of copper and asbestos, arms for steering wheels, welded axle housings, electric terminals other than battery terminals, and fuses.

All parts used in the manufacture of automobiles are subject to a drawback of 25 per cent of the duty, provided that before April 1, 1927, no drawback shall be paid unless at least 40 per cent of the cost of producing the finished vehicle has been incurred in Canada; and that after that date no drawback shall be paid unless at least 50 per cent of the cost of the finished article has been incurred in Canada; and provided also that no drawback shall be paid more than once on any one article.

The amendments to the automotive tariff bill are effective provisionally from May 22, and when the bill is finally adopted, it is provided that the new rates will be made retroactive from April 16.

Hockensmith Returns

ALBANY, Ore., May 29.—G. T. Hockensmith, who was one of the first automo-

bile dealers in Albany, has returned to the business after a vacation of several years. Mr. Hockensmith will be local agent for the Pontiac and Oakland lines, serving as a branch manager for the Vick Bros. firm in Salem. He will shortly move into a modern garage which is now don, S. W. 1.

Buffalo Plans Radio Show

BUFFALO, N. Y., May 29.—Thomas A. White, chairman, announces that the third annual radio show, under the auspices of the Buffalo Radio Trades Association, will be held at the Broadway Auditorium, October 18-23.

Hudson Sales Gain

DETROIT, May 29.—Retail buyers are purchasing Hudson and Essex cars at the same rapid pace set in April, the company reported today. For the first two weeks of May owners took delivery of 17,100 cars. This brings the total since April 1 to 52,100, which is over 16,000 in excess of the number of cars delivered to buyers in the same period of last year.

Plan British Exhibition

WASHINGTON, May 29.—The International Motor Exhibition of England will be held at Olympia, Kensington, London, from October 21 to 30, according to cable advices just received by the U. S. Department of Commerce. The show will be under the auspices of the Society of Motor Manufacturers and Traders, Ltd., headquarters at 83 Pall Mall, London, being built.

Takes Rickenbacker Sales

HOUSTON, Tex., May 29.—The Rice-Coppinger Company with Calder Rice as president and Walter Coppinger as vice-president and general manager, has been organized here for the purpose of distributing the Rickenbacker lines in the Houston territory. The location of the company will be announced in a short time it was said. Several Rickenbacker agencies will be planted in south Texas immediately by the new concern.

Buick Sales Continue Ahead of Shipments

DETROIT, May 29.—The delivery of Buick cars to owners continues to run far ahead of shipments, according to factory announcement. Sales for the first 20 days of May totaled 19,709 units, or 5,772 more than shipments for the same period. Cars shipped from the factory during the 20 day period totaled 13,937.

This shipment figure maintains the average of about 20,000 cars shipped per month since the current series was introduced last August.

The sales for May are maintaining the pace set in April, according to E. T. Strong, general sales manager. April deliveries were 7,542 cars ahead of shipments. Dealer's stocks are being rapidly reduced by the heavy demand for cars, Strong says.

Accessory Shipments in April Gain Over March

Original Equipment and Replacement Parts, However, Show Decline

NEW YORK, May 29.—April shipments of original equipment and replacement parts declined from March but shipments of accessories and service equipment increased, according to the monthly report of the Motor and Accessory Manufacturers' Association.

Using January, 1925, as an index basis of 100, original equipment shipments in April were 160 compared with 182 in March, 160 in February and 137 in January, while replacement parts shipments were 141 compared with 146 in March.

April shipments of accessories stood at 176 against 167 in March, and service equipment shipments increased from 205 to 208. The figure representing total parts, accessories and equipment business for April was 161, comparing with 176 in March, and general business declined from 120 to 112.

The April decline in original equipment and replacement parts shipments should be regarded in connection with shipments throughout the first quarter, which were on a tremendous scale. Although a fall-off in May car production is indicated, an increase in order for original equipment is expected to meet certain step-ups in car production anticipated in June.

Reports from the Motor and Accessory Manufacturers' Association members say that business is continuing on a good level. Unless some unforeseen circumstances arise, a comfortable summer and a good year as a whole are expected.

Benjamin Represents Yellow

ST. LOUIS, May 29.—E. S. Benjamin has been appointed wholesale representative in St. Louis territory for the Yellow Knight division of General Motors. He will appoint Yellow Knight sleeve-valve-engined truck and bus dealers in Missouri, Illinois, Tennessee and western Kentucky. Retail headquarters for Yellow Knight trucks has been established at 2640 Washington boulevard. C. H. La Rue is sales manager.

Sponsel Company Formed

WASHINGTON, May 29.—The organization of the Sponsel Universal Joints Company, has been announced here, organized for the manufacture of universal joints for trucks and motor cars, under patents issued to Charles W. Sponsel, deceased. Production will approximate 500 to 1,000 joints a day. Rear Admiral W. W. Kimball, retired, is president of the company which has taken over the plant of the Bozzaro Engineering Company, which also intends to manufacture motor cars, truck and motor boat devices.

I.C.C. to Study Entire Bus and Truck Industry

Inquiry Will Embrace All Phases of Operation and Competition

WASHINGTON, May 29.—The growing competition of motor trucks and buses with railroads was recognized today by the Interstate Commerce Commission which ordered an extensive and sweeping investigation into the entire competitive structure of motor and rail transportation. The inquiry will embrace the legality and propriety of motor bus operation, rates and fares, and the extent to which the railroads have been affected by motor competition.

In making public its order for the inquiry, the commission said it was prompted to make the investigation because "the operation of motor buses and motor trucks by or in connection or competition with the railroads has been steadily increasing and is likely further to increase."

"The commission should be in possession of full information regarding the operation of motor buses and trucks operated by or in competition with the railroads, in order that it may intelligently make recommendations to Congress respecting the regulation of such carriers by motor buses and trucks."

The investigation is the most sweeping undertaking of the commission since the passage of the Hoch-Smith resolution adopted by Congress in January, 1925, requiring it to investigate the entire freight rate structure of the country. No dates for the hearings were set; these to be announced later. It was stated, however, that it is planned to hold the hearings at various places throughout the country.

Mexico City Plans Show

WASHINGTON, May 29.—Mexico City is holding its first automobile show in four years under the auspices of the Mexico Automobile Club, the automotive division of the Department of Commerce is informed. The show will start May 29 and will continue two weeks. All available space was taken by exhibitors far in advance of the actual date of the show.

Bosch Dealers Meet

SPRINGFIELD, Mass., May 29.—More stable and orderly conditions of the radio trade and greater demand than ever for radio products were predicted at a radio distributors' convention of the American Bosch Magneto Corp. at Hotel Kimball, May 24 to 26. The new Bosch radio line was on exhibition and the distinctive features and talking points of the products were presented by factory sales heads and engineers. About 140 factory officials, salesmen and distributors were in attendance. Approximately 60 per cent of the distributors present are also

wholesalers of automotive equipment. Part of the time was given to visits at the Bosch plant, where production of the new radio products will soon be under way.

Vellie to Build Bodies

MOLINE, Ill., May 29.—The Vellie Motors Corp. has decided to manufacture its own automobile bodies and is now purchasing materials and installing the necessary equipment. One of the buildings of the main plant here is being utilized for the purpose. Production will begin during the forepart of July. "Our action in this respect," said General Manager E. McEwen, "is one of several such moves we have made during the year with the object of controlling the constituent materials required in the manufacture of Vellie cars, insofar as both quality and rate of production is concerned. Early this year we moved our engine works from Marion, Ind., and installed a department for the manufacture of our own axles."

Drivurself Body Meets

SPRINGFIELD, Ill., May 29.—At the annual meeting here of the Central States Drive-It-Yourself Association, officers were elected for the coming year as follows: President, J. P. Brown, Springfield, Ill.; vice-president, L. E. Riley, Gary, Ind.; secretary-treasurer, E. L. Frazier, Quincy, Ill. Reports indicated a steady increase in the number of cities where cars are rented for self driving, many commercial salesmen who formerly drove a car from city to city, now patronizing local companies, thus saving money and time.

San Antonio Personnel Undergoes Many Changes

SAN ANTONIO, Tex., May 29.—A number of changes and additions have been made in the personnels of the San Antonio automobile dealers during the last few days. B. E. Brock, for the last five years with Dow Motor Company, Ford dealer in Galveston, has become general manager as well as sales manager of the Crawford Motor Company, Ford dealer in San Antonio, according to L. A. McDonald of Houston, president of the company. T. B. Guinn, who comes to the Crawford Motor Company as secretary and treasurer, has been manager of the Ford dealership in Columbus, Texas.

Cyril Wrigglesworth recently accepted the position of sales manager of the Barry Motor Company, Oldsmobile dealer and Paige and Jewett distributor in San Antonio.

H. L. Winter, district representative of the Rickenback Motor Company of Detroit is making San Antonio not only his place of residence but his business headquarters for the extensive territory that he travels.

W. A. Smith of the sales staff of the Smith Motor Sales Company, San Antonio Chevrolet dealer, was the leading salesman in Zone 7 (the Houston zone) for April, having sold in that time 11 new Chevrolets and six used cars.

Boston Car Sales Move Upward Throughout May

Registrations in First Four Months Show Gain of 32,773

BOSTON, May 29.—Continued good weather has kept the sale of motor cars extending upward this month until a number of them have closed up the gap in the figures comparing the sales for the first few months of this year to the same period of a year ago. In January and February the sales fell from 25 to 30 per cent behind those months a year ago. March was somewhat better due to the show. Then April came along very well so that the first quarter found more than 50 per cent of the cars were running ahead of last year's figures, and the new registrations ran up to about 20 per cent more.

The motor vehicle registry for February and March this year compared to a year ago showed registrations had dropped off 32,253. But April came along with an increase of 23,966 over a year ago so the deficit was reduced about two-thirds. With the heavy registrations in January this year the total for the entire four months shows a gain for 1926 of 32,773. May figures are not obtainable, but they should be good.

Some of the dealers—they are in a minority—now show figures to place their sales to date as equal to late July or early August of last year.

Used cars have been going very well, and the prices have held up on them much better than the dealers had expected. The tire sales have not been as steady as a year ago, but with warm weather the dealers expect an end to the fluctuation period.

Olds Business Booms

PORTLAND, Ore., May 29.—Edward E. Cohen, president and general manager of the Oldsmobile Company of Oregon, reports Oldsmobile business in this territory booming. Each month this year has excelled last year's record. Records for one month's volume of business were shattered in April, when a total of 133 new Oldsmobiles were delivered. This is an increase in sales of more than 100 per cent over April, 1925, and it also is the greatest volume of business done in any one month in the ten years' history of the company.

Cunningham Joins Eisemann

NEW YORK, May 29.—Dr. R. H. Cunningham has joined the engineering staff of the Eisemann Magneto Corp. He has been identified with the automotive industry since its inception, except from 1917 to 1919, when he occupied a post at Columbia University.

N.A.C.C. Members Will Study Instalment Sales

Meeting June 3 Will Take Up Criticisms of System Made by Others

NEW YORK, May 29.—At the annual members' meeting of the National Automobile Chamber of Commerce on June 3 two of the important topics will be time payments and foreign trade.

The evident hostility towards and lack of understanding of the subject of automobile time payments on the part of some other trade groups, as shown in the way the Chamber of Commerce of the United States at its Washington meeting last week handled its presumably impartial time payment session indicate the necessity for the automobile industry to be constantly "on its toes" in this respect.

It was made clear at the Chamber session that any weaknesses in the time payment system will be emphasized by leaders in other industrial lines and automobile executives realize the desirability of mending their own fences in this respect if any mending is necessary.

Hence, although the subject of time payments was on the annual members' meeting agenda before the Chamber session was held, because of the Chamber discussion the members' review of the whole time payment question on June 3 takes on special significance.

An effort will be made to determine how much real ground there may be for the frequent attacks upon time payments from outside the industry, to see what the weaknesses really are and how they may be remedied, and to work out means of keeping before the public the sound status of automobile paper and the methods used in extending credit to car buyers.

In discussing foreign trade the N. A. C. C. members are expected to decide where and when the next regional congresses are to be held and may change the date of the next World Motor Transport Congress. This has been fixed tentatively for New York Show week, Jan. 8-15, but attendance so early in January requires many foreign delegates to leave their homes before Christmas.

G. M. Export Sales Gain

NEW YORK, May 29.—General Motors sales to overseas dealers in the first quarter this year totalled 31,936 cars, compared with 15,577 and 17,266 in the corresponding quarters of 1925 and 1924, respectively. First quarter sales this year exceeded each quarter in 1924 and 1925 except the fourth quarter last year, when 33,134 cars were sold overseas. Alfred P. Sloan, Jr., president, says that General Motors exports approximate 12 per cent of the total number of cars sold and at their present rate, will total

about \$100,000,000 wholesale value for 1926, compared with \$77,109,696 in 1925, \$50,929,322 in 1924, \$39,193,869 in 1923 and \$19,875,015 in 1922.

Wills Promotes Boos

MARYSVILLE, Mich., May 29.—Charles F. Boos has succeeded W. J. Parrish as general sales manager of Wills Ste. Claire, Inc., following Mr. Parrish's resignation. A. E. Northrup, body designer for the company has also resigned, no successor having been named.

Holt Heads Rubber Division

WASHINGTON, May 29.—Everett G. Holt, former assistant chief of the rubber division, U. S. Department of Commerce, has been appointed chief of the division, it has been announced by the department. He succeeds Paul L. Palmerton, resigned to become head of the Palmerton Publishing Co. Mr. Holt received his bachelor of arts degree at Colby College and is a graduate in law at George Washington University. He entered the department in 1921.

Parts Company Formed

HOUSTON, Tex., May 29.—W. R. Hayes, J. R. Hayes and R. L. Atkins have organized the Houston Service Parts, Inc., for the distribution of standard parts in south, southwest and east Texas and parts of Louisiana. The new concern is located at 1503 Fannin street. W. R. Hayes is president of the company. The company will travel several men and will handle only standard automotive parts and accessories and garage equipment.

Graham Brothers Sales Set Records in April

DETROIT, May 29.—A total of 10,208 Graham Brothers trucks and motor coaches were delivered from Jan. 2 to May 15, by Dodge Brothers dealers in the United States, Dodge Brothers, Inc., made known today. This is a gain of 4,976 or 88 per cent over the corresponding period of 1925.

Retail deliveries for the two weeks ending May 15, totaled 1,364, a gain of 760 or 126 per cent over the same period in 1925. Total factory shipments of Graham Brothers trucks and motor coaches from Jan. 1 to May 15, 1926, amounted to 13,022, a gain of 5,027 or 63 per cent over the corresponding period one year ago.

Shipments of Graham Brothers and motor coaches in several days less than four months of 1926 exceeded the entire factory production of 10,728 units shipped in the 12 months of 1924. The history of Graham Brothers has been one of constant increases. In 1922 factory sales showed a gain of 181 per cent over the previous year, while in 1923 the gain was 105 per cent over 1922. Sales for 1925 showed a gain of 123 per cent over 1924.

Car Output Curtailment Felt by Tire Builders

Sales to Dealers Pick Up Slightly but Are Not Yet Normal

AKRON, O., May 29.—Tire manufacturers who do a large original equipment business have been feeling the effects lately of curtailment in the motor industry. Orders in many cases have been reduced 20 to 30 per cent, and some automobile companies have postponed the acceptance of contracts previously made for delivery of tires this spring.

While the rubber companies make little or no profit on tires sold direct to the car manufacturers, this market acts as a backlog when business is slow, and helps to reduce factory overhead.

Sales to dealers have been picking up, on the other hand, but even this business is not yet up to expectations. There has not been sufficient warm weather to bring about the expected spurt in retail sales.

Despite the large inventories of casings and tubes in factory and branch warehouses, the majority of Akron authorities are more optimistic over the prospects for future tire business. The bottom of the 1926 depression for the industry has been reached, in their opinion, and from now on they predict business is bound to be better.

Less talk is heard now of the "hypothetical" reduction in tire prices scheduled to be put into effect this spring. Dealers and the public in general appear to be coming to realize that present prices of tires are not based on an inflated crude rubber market and that conditions do not warrant lower prices.

Owing to the so-called "buyers' strike" maintained by many motorists this spring with the view of getting tires cheaper, an actual shortage of tires may develop this summer, according to several Akron manufacturers. The abnormal curtailment of buying on the part of the public forced manufacturers to keep down production.

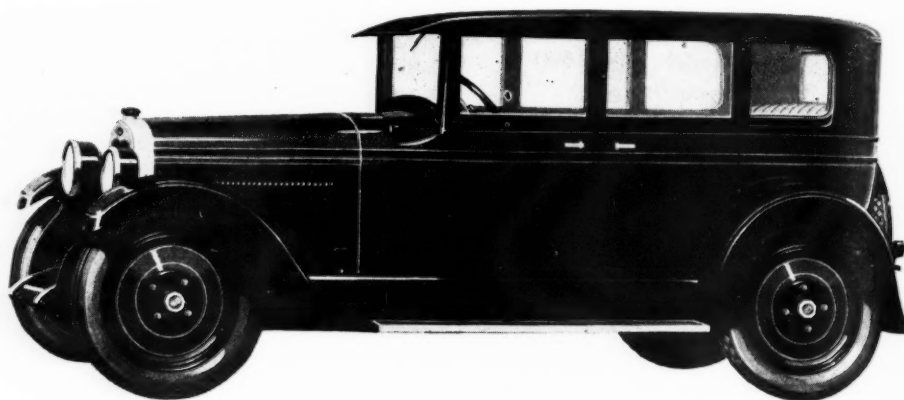
William E. Pfeiffer, vice-president of the Miller Rubber Co., estimates that there has been a shortage in sales of tires of approximately 5,000,000 casings. This has been done, he points out, in spite of the fact that motor car registration is the largest in the history of the country, and bus transportation is increasing by leaps and bounds.

Hurd Represents Hupp

SPOKANE, Wash., May 29.—William Hurd has been named wholesale territory representative by Standard Motors, Inc., Hupp and Cadillac distributors, for eastern Washington, northern Idaho and western Montana. He was formerly connected with the Oakland factory in the same capacity.

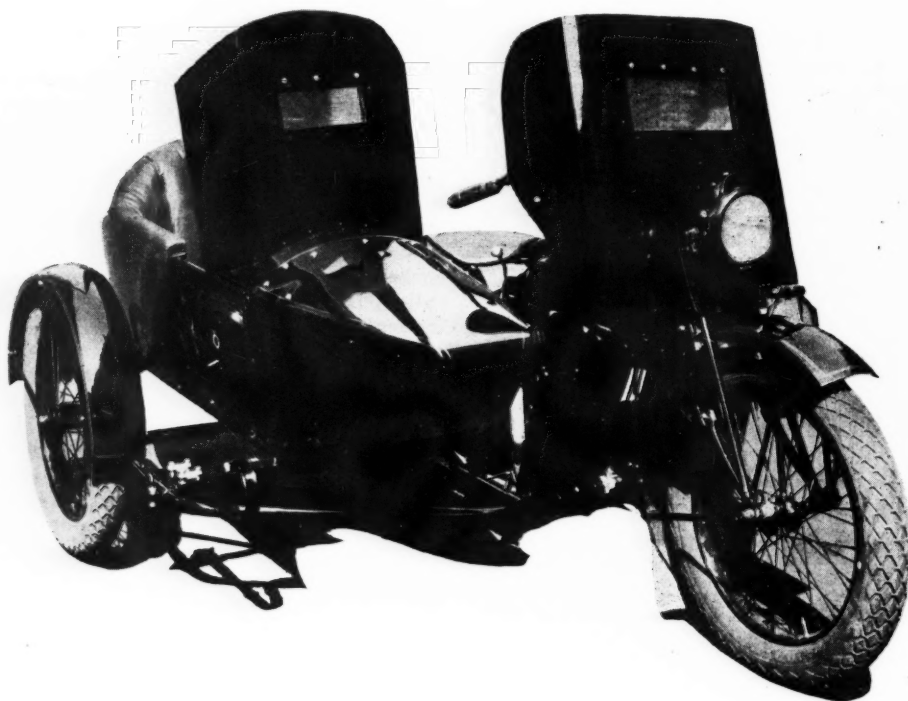
Three Series Now in Nash Line

WITH the Ajax car now known as the Nash light six the Nash Motors Co. line of cars now includes three complete series—the Light Six, Special Six and Advanced Six. When the Ajax car was introduced about a year ago a subsidiary of the Nash Motors Co. was organized to manufacture it at Racine, Wis. The car was a good seller from the start and production was increased from time to time. The parent company now has absorbed the subsidiary, and the Nash name with all it means to the motor car trade and the car owning public has been bestowed upon the new car. Mechanically the Nash Light Six is identically the same as the perfected Ajax which reached a production of 25,000 cars in its first year.



The Nash Light Six Four-Door Sedan, formerly the Ajax

Armored Motorcycle for Chasing Bandits



Armored motorcycle and side car designed by Indian Motorcycle Co., for use of police departments. Both motorcycle and side car are equipped with large shields of bullet-proof metal each provided with thick bullet-proof glass for visibility.

A BANDIT chasing armored motorcycle sidecar outfit, designed by the Indian Motorcycle Company, is now undergoing tests in New York City. This outfit, at the suggestion of the New York City police, was designed and constructed to afford proper protection to motorcycle officers when chasing bandit cars.

The bandit chasing armored sidecar is equipped with two large shields of $\frac{1}{8}$ in. bullet proof metal, one located in front of the motorcycle driver and the other before the sidecar passenger. Each

shield has a rectangular shaped bullet proof "safetee glass" inserted just above center. This glass is $\frac{3}{8}$ in. thick. In addition to the large shields there are two leg shields of the same metal which complete the protection of the driver. The inside of sidecar outfit is lined with this metal so that any bandit bullets would only harmlessly bound off. The machine is an Indian Chief and Princess sidecar equipped with balloon tires and the armor equipment only adds 40 pounds to its regular weight.

BEANEY TIRE FLAP

(Continued from page 30)

alignment. So that the lengthening and shortening of the flap under varying pressure will be unrestrained the tire valve stem hole is placed opposite the overlapping ends. Two other features are also incorporated in the construction. First, the flap is slightly arched or convex in cross section so as to adapt itself to the curvature of the tube and secondly it has a rubber center filler vulcanized over two plies of duck. Due to the range of adjustment the Beany flap makes possible a reduction in the number of sizes necessary to handle the various tire diameters.

In addition to developing the flap, the manufacturer has invented and developed special machinery for its manufacture. This includes a patented sewing machine for sewing the loops to the ends of the flap. A more complicated machine has also been developed which combines a



Beany Self Adjusting Tire Flap

number of manufacturing functions.

It is not the purpose of the Beany Rubber Co., Inc., to supply the consumer's demand for these flaps but rather to arrange with different tire manufacturers for its manufacture on a royalty basis.

April Car Sales Reach 17,795 in N. Y. District

Total Is Gain of 5,415 Over
Same Month Last Year
And Over March

NEW YORK, May 29.—A total of 17,795 new passenger automobiles are credited to April sales in the Metropolitan territory, according to the registration figures assembled by Sherlock & Arnold.

This, in the words of George Stowe, president of the Automobile Merchants' Association of New York, Inc., constitutes "the biggest month in the biggest industry in the biggest retail market in the world."

The April total is a gain of 5,415 or 43 per cent over April, 1925, and a gain of 5,505 or 44 per cent over March this year.

The territory represented by these figures covers the five boroughs in New York City, the remainder of Long Island and the adjacent counties of Putnam, Rockland, and Westchester.

During the first four months this year, 40,222 new passenger vehicles were sold. This was a gain of 10,714 or 36 per cent over the first four months in 1925.

Sales of higher priced cars in April totalled 1,802, a gain of 73 per cent over April last year, and sales of lower priced cars were 15,993 or a gain of 41 per cent over the same month in 1925.

The higher priced car sales during the first four months this year were 4,110 and lower priced car sales 36,112, a percentage of 10.2 and 89.8, respectively. The percentage of higher priced car sales to total sales in the first four months last year was 9.5 again 7.6 and 10.2 in the corresponding periods of 1924 and 1923, respectively.

Florida Business Better

ATLANTA, May 29.—Interviews with a number of distributors of motor cars, accessories and parts in Atlanta regarding the Florida situation since the removal of the embargos in that state indicates that the industry there is on a much more stable basis than it has been at any time since the Florida boom first began some years ago, but that not as many cars or accessories are being sold. However, jobbers and distributors advise that everything gives promise of a much better than normal business in Florida this year, with sales during the first four months of 1926 running at least 40 to 50 per cent better than they were during normal times before the boom.

Plans Big Radio Show

MILWAUKEE, May 3.—Milwaukee's fourth annual all-Wisconsin Radio Exposition will be held from Sept. 25 to 29 in the Municipal Auditorium, according to dates just announced as a change from the tentative time previously set. It was

impossible to obtain the Auditorium for the usual dates in November because of a prior engagement requiring the main arena for 45 days, but the advancement of the exposition is considered more favorable than detrimental because of the fact that interest in radio starts its upgrade around Labor Day. The annual convention of the Wisconsin Radio Trades Association will be held Sept. 27 and 28, in consequence of the new dates.

Dodge Bros. Dealers Meet

EVANSVILLE, Ind., May 29.—Sales representatives from branches of Hartmetz Brothers, Dodge-Graham dealer, from Poseyville, Boonville, Mt. Vernon, Ind., and the local West Side dealer branch attended the semi-monthly sales meeting, Monday night in the headquarters, First avenue and Ingle street. Otto C. Hartmetz, president; and L. M. Rerick, general sales manager; made talks on sales and service.

See Little of Ford

PARIS, May 15.—(By Mail)—Edsel Ford's visit to France has passed unnoticed by the French public and is hardly known to the automobile trade. Ford, indeed, has sought to keep out of the limelight and in this has succeeded admirably. After a few days in England, Edsel Ford came to Paris, where he was in touch with the new factory organization at Asnieres, on the suburbs of the capital, then he undertook a motor trip to the south of France and Northern Italy, from which he is expected to return on May 20, in time to sail from Cherbourg on May 25th.

Combine Sales Forces

CLEVELAND, May 29.—The Van Dorn Electric Tool Company, manufacturer of electric drills, grinders, screw drivers, etc., has combined sales organization with the Van Norman Machine Tool Company of Springfield, Mass., manufacturer of electric valve refacers, reseating cutters, valve seat grinding stones, etc.

Willys Estimates April And May Earnings High

TOLEDO, May 29.—Earnings of Willys-Overland company will total for April and May nearly \$4,600,000 before charges and taxes according to an announcement of President John N. Willys.

The returns for April showed a net earning of \$2,112,185 which exceeded by more than \$100,000 the preliminary estimate of President Willys. The big pick-up in Overland business is shown in the fact that April and May earnings will be about four times the net in the first three months as reported a few days ago.

May production continues to make new records. Retail sales of the Overland six up to May 20 exceeded the entire month's sale in April. Willys-Knights are being turned out at a rate of more than 400 a day and retail sales continue to exceed production.

New High Earnings for Half Indicated by G. M.

April Sales Record Shows
Dividend Balance Almost
Equal to All 1925

NEW YORK, May 29.—April figures showing new high records in retail sales, made public last week, indicate a new high in General Motors Corp. earnings for the second quarter this year and a balance for dividends during the first six months never exceeded in any other full year with the exception of 1925.

Factory sales of 122,742 units in April alone this year represented about 52 per cent of the 233,894 factory sales in the whole second quarter last year. Based upon normal seasonal development, total factory sales of 335,000 units for the second quarter this year is regarded as a conservative estimate. This would be a gain of 43 per cent over the 1925 quarter and nearly 20 per cent over the first quarter this year.

First quarter profits were about \$124 per unit. Sales of 335,000 units yielding that margin per unit would bring second quarter earnings to \$41,540,000. This, after allowing for prior dividends and assuming the same proportion of undistributed equities in wholly owned or controlled subsidiaries, would bring the balance for the common close to \$45,500,000 or about \$8.80 per share. This with first quarter earnings would give estimated profits for the common, including equities, of more than \$84,150,000 or \$16.30 per share for the first six months, comparing with \$46,557,600 or \$9.02 in the first half last year and with \$108,383,600 or \$21 in the full year 1925.

From this estimate it is clear that the \$4 extra declared last week was conservative and did not eliminate prospects of additional extras on the common later this year.

Plans New Garage

EVANSVILLE, Ind., May 29.—Intention of erecting a brick and concrete garage building of modern design to cost about \$100,000 was announced here today by John W. Walton, president of the Lincoln Motor Company, Buick dealer, following his acquisition of the property comprising about half a city block at First Avenue, Ingle street, and Second avenue. The property has a frontage of 150 feet on Ingle street, and 125 feet on each of the other streets.

N. Y. Buick Sales Gain

NEW YORK, May 29.—The New York office of the Buick Motor Co. reports retail deliveries of 1,358 new cars during the first 10 days of May, a gain of more than 78 per cent over the 760 delivered in the same period last year. Orders for the 10 days this year in Greater New York exceeded the same period of April, which was a local Buick record month.

Kansas City May Sales Best Thus Far in 1926

Prospects Good for Heavy Volume in June and for Rest of Year

KANSAS CITY, May 29.—New car sales in May have shown up far better than any time this year. Weather has been a serious handicap, with no continued spring days until this month, which condition retarded trade in all lines. Some distributors report that May looks like a record month, better than any for more than a year.

Prospects are for good volume through June, and indeed for the rest of the year, because of improved agricultural conditions and better tone in all business. A feature is the prospect that farmers are tending to trade up in cars, and a large volume of cars around \$1,000 are expected to be sold to farmers and others who heretofore have been content with lower priced vehicles. Owners of higher priced cars are replacing with cars of same or higher grade.

Used cars have suffered a slight setback through the first four months, and some accumulation is reported, with tendency to more liberal allowances, but the situation is not serious. Observers expect that this district will "get out of the woods" this year, and that next year and thereafter the increases will be great.

Accessories declined slightly the first few months of the year from 1925 volume, but May is showing substantial gain. Replacement parts have declined rather radically for some distributors, the loss being attributed to comparative slowness of business generally, which inclined both public and garagemen to accept price inducements.

In the automotive trade as a whole, the volume for May may be said to be about equal to May last year, and substantially ahead of April of this year; with prospects exceedingly good, but not good enough to assure the volume that the district should produce.

Haresnape Heads Board

WASHINGTON, May 29.—Val Haresnape of Los Angeles, nationally known racing expert, has been named manager of the contest board of the American Automobile Association, it has been announced here by Ernest N. Smith, general manager of the A. A. A., the appointment to take effect immediately. For the last two years he has been a member of the board, representing the Pacific Coast.

A. A. A. to Meet in Chicago

WASHINGTON, May 29.—The annual convention of the American Automobile Association will be held in Chicago on June 7 and 8, headquarters at the Palmer House, where the sessions and all committee meetings will be held, it has been

Studebaker Dealer Sets Record In Used Car Sales

CLEVELAND, May 29.—The used car department of the Studebaker agency in this city has in the past six months sold 1400 used cars for approximately \$1,000,000. George D. Keating has been in charge of the department during the time that record was made. It is a big increase over the volume of sales of used cars during the corresponding period a year ago. The used car sales floor of the agency appears to have rather a slim supply just now.

The record was achieved although the market in Cleveland is not quite so good as it was a year ago. In addition a strike of employees in the building trades has tied up building operations and thrown several thousand persons out of employment.

Keating says that the strike has not affected the business of his department. The truth is that the obstacle was hurdled by the determination, initiative and industry of the men, coupled with the guarantee that the Studebaker Corp. places on its used cars.

The company has been advertising extensively this guarantee of used cars. It has featured all of the used car advertising for months.

The public has come to know that on 1924 and 1925 cars the Studebaker this year gives what is known as the "certified guarantee," practically the same guarantee that is given on a new car. It means that the car has been rebuilt, and that any time within 30 days of the sale the car can be returned for defective parts.

Under Keating's leadership, the used car department has the co-operation of a number of salesmen, who have specialized in sales of used cars. The men in the used car department understand that business as a distinct field apart from the new car.

Determination is another factor that helped. Each man is given a goal to strive for. The quota has been exceeded each month during the last six, and they are selling used cars as fast as the new car department drives them in.

announced here by the national headquarters of the association. Approximately 800 delegates of motor clubs and associations affiliated with the national body, are expected to attend. Preceding the convention the various boards of the association will meet, including the Good Roads board, the National Touring board and the Legislative board. Approximately 30 officers, in addition to the executive committee, will be nominated for election, including the president, six vice-presidents, secretary, treasurer, and 21 new directors.

Reports Greatest Year

NEW YORK, May 29.—The annual report of the Westinghouse Electric & Manufacturing Co., shows that total sales for the year ended March 31 were \$166,006,800, the largest year volume of business in the company's history. Net income available for dividends was \$14,122,001 or 11.9 per cent on the total capital stocks of \$118,503,150. Cash on hand March 31 was \$12,606,180 and surplus \$61,100,324. Current assets were \$137,336,122 and current liabilities \$18,432,073.

French Imports Drop

PARIS, May 15—(By Mail)—American automobile imports into France are down from 4,066 to 395 for the first two months of this year, compared with the corresponding period of last year, according to French Government returns. This is obviously incorrect, for it is known that the sales of American cars in France have been maintained. The explanation appears to be that all Ford automobiles have not been counted as units but as parts, and as a consequence they figure under the heading "weight" but not as

complete automobiles. The figure of 395 American automobiles imported into France during January and February is exclusive of Fords. It is understood that the April returns will be complete, for the French government will estimate the number of Ford automobiles by the number of engines imported.

Timken Promotes Rumball

CLEVELAND, May 29.—Fred G. Rumball, formerly branch manager of the Kansas City branch of the Timken Roller Bearing Service & Sales Co., has been promoted to the position of sales engineer, automotive division, of the Timken Roller Bearing Company. Mr. Rumball will have his headquarters at Cleveland, with Edgeley W. Austin, assistant manager of sales.

Plans Service Course

PITTSBURGH, May 29.—The growing importance of service management in the automotive industry is indicated in the announcement from the Carnegie Institute of Technology that a new four-year college course in automotive service management is now available in its College of Industries. The new course is offered in the department of Works Management, and the Bachelor of Science degree will be conferred upon graduates.

Takes Pierce Distribution

PORTLAND, Ore., May 29.—Announcement of the appointment of Milton F. Rohn Company, as Oregon distributor for the Pierce Arrow line of automobiles, motor buses and trucks, was made this week by George E. Smith, factory representative of the Pierce-Arrow Company. Sales rooms and shops are now in operation at 16th and Alder Streets.

S.A.E. Hears Growth of Academic Motor Study

California U. Professor Tells of Development of Department Since 1907

SAN FRANCISCO, May 29.—The principal paper presented at the April meeting of the San Francisco section of the Society of Automotive Engineers, was by Professor Arthur B. Domonoske, on "Automotive Work at the University of California." After tracing the development of this department from very small beginnings in 1907, when four seniors initiated automotive theses by tests on a borrowed White steamer, to today, the speaker emphasized the meagre attention given to the important subject by the faculty, and declared that the influence of the world war on automotive transportation and on aviation at once brought the study of automotive subjects to the fore at the university.

"Reviewing the work of the last nearly 20 years," said the speaker, "the following points seem to be emphasized:

"First, that desire to investigate the design and performance of automotive equipment arose within the student body, and was not instilled by the faculty. The attitude of the department was that of the American Society of Mechanical Engineers, namely that 'no real engineering principles could be developed in the automotive field.' Lacking adequate equipment in their early days, the students were concerned with the performance of the machine as a whole. As machines grew more prevalent, however, particular phases were studied, until now consecutive theses are run on small units of the system.

"Second, that, with the increased equipment, paid help to keep that equipment in order, carefully prepared instruction sheets, and the constantly growing file of fraternity house reports, we are demanding more in routine laboratory experiments than of the older theses. From a negligible part of instructions, laboratory work now demands the major portion of the students' time, with a corresponding neglect of the lecture courses. This follows the general trend of the country as a whole, that is, in the gradual increase of experimental work.

"Perhaps the greatest need of the future is lecturers who may instill the ideals of clear thinking and fundamental knowledge, in order that the results of the experiments may be correlated and developed into laws."

Chrysler Dealers Meet

PORTSMOUTH, O., May 29.—Chrysler dealers in Scioto, Jackson and Adams counties gathered at the F. & M. Motor Co., to participate in a meeting, sponsored by M. A. Campbell, a representative of the Chrysler factory to demonstrate the qualities of the models of cars. A trip was made to Manchester, a dis-

TEXAS REO OPENS NEW HOME



New home of San Antonio branch of Reo

tance of 70 miles in the "60," "70" and "80" models. Dealers who took part in the meeting and demonstration were: Gilbert Havenor, South Webster, Charles Bowman, Oak Hill, Stephen Vallery, Waverly, C. M. Hogan, Wellston, Max Middleman, Maysville, Ky., J. W. Donovan, Manchester, and members of the F. & M. Motor Co.

Yellow Buses in Service

JERSEY CITY, N. J. May 29.—About 100 of the original order for 333 gas-electric buses placed with the Yellow Truck & Coach Co. are now in operation by the Public Service Transportation Co., a subsidiary of the Public Service Corp. of New Jersey. A supplemental order for 54 has been placed. Most of these are expected to be in regular service about August. The Public Service fleet, between 800 and 900 buses, will then be the largest operated by a street railway company in co-ordination with trolley lines.

Chrysler to Boost Output

NEW YORK, May 29.—Walter P. Chrysler, president of the Chrysler Corp., says that the May production schedule calls for 8,500 of the new 60 models, with plans to increase the output to 11,000 in June. Current production on the new model is averaging 350 a day and total May production, including the other models, will be around 15,000 cars.

Stout Buys Verville

DETROIT, May 29.—William B. Stout, of the Stout Metal Airplane division of the Ford Motor Company, has purchased one of the Verville commercial airplanes for personal use, between the airports of the Ford Motor Company's freight and mail landing field terminals. The Verville planes are now being produced in quantities by the Buhl-Verville Aircraft Company of Detroit, and Stout's machine will be powered with a Curtiss OXX-6 engine in place of standard Curtiss OX-5 power plane.

SAN ANTONIO, Tex., May 29.—Five thousand persons attended the formal opening of the new home of the Reo Motor Car Co. of Texas, factory branch, which took place this week. Full-page announcements in the city's two papers invited the public to the occasion, which was enlivened with orchestral music, refreshments and souvenirs. The new plant, costing \$55,000 exclusive of equipment, is centrally located at the corner of Broadway and Eighth street on Automobile Row. W. P. Bates, branch manager, was in charge of the formal opening.

Plan Ohio N. A. D. A. Meet

COLUMBUS, O., May 29.—Upon the return of G. G. Peckham, president of the Ohio Buick Co., of Cleveland, and chairman of the board of directors of the Ohio Council of the National Automobile Dealers' Association from an European trip, a meeting of the board will be called to take up the question of the place and time for the annual convention of the Ohio Council. Mr. Peckham is expected to return early in June. Preliminary plans are being made for a convention to be held at some lake city, possibly Cedar Point and the chartering of a lake steamer to make a trip through the Georgian Islands.

Takes Chrysler Distribution

SPOKANE, Wash., May 29.—Imperial Motors, with Charles C. Fagan, formerly prominent in auto row circles in Portland, Ore., as manager, has taken over the Chrysler territory comprising eastern Washington, northern Idaho and western Montana. The territory formerly was handled by Logan-Grand company who recently negotiated with William Wallace of Seattle who was forming the William Wallace company when Mr. Fagan made arrangements to take over the Wallace interests. "The new firm is bringing new capital into the business and is an entirely new organization, although employees of the old organization in many cases have been retained," Mr. Fagan said.

TRADE ASSOCIATION ACTIVITIES

BIRMINGHAM INSTALLS OFFICERS

New Dealers Not Yet Members Are Guests at Meeting

BIRMINGHAM, May 29.—Installation of officers and discussions of plans for the coming year were the features of the recent meeting of the Birmingham Motor Trades Association which consists of dealers and distributors operating in Birmingham district. A full attendance was on hand for the meeting.

Members of the association had as their guests the new dealers who have recently opened in Birmingham and have not yet become affiliated with the association. They were J. B. Cress, newly arrived Oakland and Pontiac dealer, and F. A. Conway, sales promotion manager for the Oakland factory, whose territory for his factory is Alabama.

No definite plans for the work were adopted but a discussion was held.

New Officers and directors of the company are as follows: A. R. Pryor of the Pryor Motor Company, president; D. H. Maring of Crawford's Auto Shop, vice-president; J. B. Farley of the Bissell Motor Company, secretary; T. J. Turrentine of the Willys-Knight Overland Company, treasurer. Directors: Donald Drennen of Drennen Motor Company, H. E. Bissell of the Bissell Motor Company, L. H. Pennington of the Detroit Motor Company, T. B. McCarty of the McCarty-Greene Motor Company.

Faeh Returns from Tour

COLUMBUS, O., May 29.—A. C. Faeh, secretary of the Ohio Council of the National Automobile Dealer's Association, has returned from a two month's educational campaign which was sponsored by the association and which was designed to educate service managers and service men on questions of service. He was accompanied by F. W. Sevin, of the Vacuum Oil Co., who aided in the work by giving talks on lubrication. Mr. Faeh gave the talks on general service. During the campaign a total of 46 cities and towns in Ohio were visited. A meeting of all service men was usually held in the evening when the service talks were given and questions answered. The following day a meeting for automobile dealers exclusively was called when questions of the sale of both new and used cars were discussed. During the campaign Mr. Faeh picked up many new members for the Ohio Council and showed the benefits to be obtained from affiliation with the association.

Bloomington, Ill., Elects

BLOOMINGTON, Ill., May 29.—At the annual meeting of the Bloomington Automobile Trade Association, new officers were elected for the coming year as follows: President, Jesse Simpson; vice-president, March Wells; secretary, W. R. Mette; treasurer, Ernest Martens. After being inactive for the major portion of the last year, the association has been reorganized and will hold weekly meetings, it being realized that an interchange of experiences over the luncheon table will be of value to all while a spirit of co-operation is fostered that promises to promote mutual welfare. It is planned to secure the presence of a

number of speakers from the national dealers association during the coming year.

Would Close Sundays

WASHINGTON, May 29.—R. W. Howard, vice president of Sterrett and Fleming, Inc., local Hupmobile distributor, is sponsoring a movement among members of the Washington Automotive Trade Association to ask all members to close their agencies on Sundays. A special committee has been appointed to consider the proposal. Mr. Howard, at a meeting this week, explained the average dealer now feels he must keep open to compete with other dealers. Most of the members are said to be in sympathy with such a move if it is universally respected.

Radio Jobbers Organize

NEW YORK, May 29.—The Jobbers' Radio Association of America, Inc., an organization composed of representative radio wholesalers from all parts of the United States, was formed at a series of meetings held at the Ambassador Hotel, Atlantic City. One of the first acts of the association was to begin the construction of a code of ethics designed to correct some of the chaotic conditions now prevalent in the radio industry, with the expectation that, working with existing associations of manufacturers and retailers, the wholesalers can lend active and forceful aid in the general effort to stabilize the business and assure the public better service and better values in radio merchandise. The new organization will hold its first annual meeting in New York at the time of the radio shows in September.

Los Angeles Re-Elects Breyer

LOS ANGELES, May 29.—Robert S. Breyer, vice president and general manager of the Troy Motor Sales Company, Nash and Ajax distributor in southern California and Arizona, was re-elected president of the Motor Car Dealers' Association of Los Angeles, at the annual meeting of the organization recently held. This is only the second time in the 19 years the association has been in existence that any officer has been chosen to serve two terms as president. The organization has had probably its most successful year under Mr. Breyer's administration and it was largely because of his qualities of leadership that the membership voted to return him to office. Don P. Smith, president of Don P. Smith, Inc., southern California distributor of Moon and Diana cars, was elected vice president; Howard W. Tuttle, general manager of the Howard Automobile Company of Los Angeles, southern California Buick distributor; Hamlin W. Nerney, of Hamlin W. Nerney, Inc., secretary; Burt Roberts, executive secretary. Earl R. Carpenter, president of the Paul G. Hoffman Company, Studebaker distributor; Harry A. Lord, president of the Lord Motor Car Company, Jordan distributor; Winslow B. Felix, president of Winslow B. Felix Company, directors.

Peoria Elects Rutherford

PEORIA, Ill., May 29.—Bruce Rutherford, president of the Kinsey-Rutherford Company, has been elected president of the Peoria Automotive Association by the new board of directors.

BOOSTS HEADLIGHT SERVICE

Kansas City Association Aids Dealers to Sell Safety

KANSAS CITY, May 29.—Increase in merchandising, and improvements in servicing of headlights, is a new factor in the promotion program of the Automotive Trades Association of Kansas City. This association succeeded the garagemen's organization three years ago; it includes about 180 of the independent servicing firms and individuals of Kansas City.

George Arnold, president, has made a campaign in behalf of headlights, the third of his projects for the association. The first was a brake campaign a year ago, which was so successful that it will be repeated this year. The second project was a service school, that was inaugurated with marked success May 13. And now the headlight campaign.

This new movement was put on May 24 to 28, inclusive. Its first necessity appeared in the disclosure from a survey, that far less headlight servicing business was being done than was logically to be expected. It was stated that there is only one headlight testing station in Kansas City, which serves in the automobile-electric field exclusively, chiefly in wholesale distribution of the supplies and merchandise.

The campaign started with the added attention to headlight servicing by the garagemen, who were urged to merchandise this service intensively through the month. Each garagman was instructed through an association bulletin to mark off his wall and floor in the proper way to test headlights. Each servicing station sold to the owners, the idea of having headlights tested, and tested by the station that brings up the subject. Thirdly, the owners were sold the idea of carrying a spare light. Fourth, the customers were informed of the conditions which may develop in headlights before they are actually burned out, under which wisdom would suggest replacement; and the garagemen thus sold the idea of replacement of headlights before the lamps were actually blind.

Atlantic Outing Planned

ATLANTA, May 29.—Arrangements for the annual summer outing of the members of the Atlanta Automobile Association to be held June 10 have been practically completed, the event this year giving promise of being one of the best in the history of the association.

While the golf tournament for the automobile championship of Atlanta will be the feature of the day's program, there will also be many other interesting events, including stunts, games of various kinds, swimming and running races, a tennis tournament, etc. A new feature this year will be a bridge tournament for the women, attractive prizes to be awarded to the winners.

All prizes to be given for the different events are being donated by the automotive firms in Atlanta which are members of the association. The industry in Atlanta will close up shop for the day and all take part in the event as has been the case every year for the last decade.

Many U. S. Makers Will Exhibit at French Show

Foreign Representatives from All Countries But Germany Will Display

PARIS, May 15.—(By Mail)—American representation in the Paris automobile show, to be held in the Grand Palais, October 7 to 17, will be the biggest on record, and will be in excess of that of any other foreign nation. The car manufacturing firms having stands on the main floor are Auburn, Buick, Cadillac, Chrysler, Chevrolet, Dodge Brothers, Ford, Hudson, Lincoln, Marmon, Oldsmobile, Overland, Oakland, Packard, Paige, Pierce Arrow, Pontiac, Rickenbacker, and Studebaker.

The entire Italian and Belgian industries will be represented; there will be a few firms from Austria, none from Germany, and Rolls-Royce, Austin, Morris and Constantinesco from England. Following the passenger car show there will be a truck and commercial vehicle exhibition in the same hall from October 23 to 31, in which the American firms will be Dodge Brothers, Ford, Graham Brothers, Pierce Arrow, Studebaker and various General Motors firms.

Last year no automobile show was held in France owing to inability to obtain the use of the Grand Palais and as a consequence particular importance is given to the 1926 exhibition both from a commercial and technical standpoint.

The demand for space is the biggest in history, says Henri Cezanne, general show manager, and has made it necessary to cut down the size of individual stands. Maximum size is 1184 square feet, the other sizes in order of importance being 968, 753, 538 and 430 square feet. Foreign firms having exhibited three times are put on an equality with the home manufacturers, the size of stands being determined by the number of workers and the number of models produced.

In conjunction with the automobile exhibition, a motor boat show will be held on the banks of the River Seine, a few yards from the Grand Palais, boats being shown both ashore and afloat. While under separate management, the boat show will really form a part of the automobile display, with single admission for the two.

According to present information, the outstanding technical feature of the coming Paris show will be a large number of small six cylinder engines, several of these coming in the low priced category. Except for expensive cars, six cylinders have not been general in France up to the present, but manufacturers now gauge public opinion as requiring six cylinders when piston displacement is more than about 100 cubic inches. American competition is largely responsible for this change.

Coming Motor Events

Automobile Shows

1927 NATIONAL SHOWS

New York.....Jan. 8-15
Chicago.....Jan. 29-Feb. 5

Chicago.....Nov. 8-13
Show and convention, Automotive Equipment Ass'n, Coliseum.
Chicago.....Nov. 15-19
Show and convention of the National Standard Parts Ass'n, Hotel Sherman.
Denver, Colo.....Aug. 3-6
Automobile Show, Civic Center.
Fargo, N. Dak.....July 12-17
State Fair, State Fair Grounds.

Races

Altoona, Pennsylvania.....June 12
Altoona, Pennsylvania.....Sept. 6

COMING FEATURE ISSUE OF CHILTON CLASS JOURNAL PUBLICATIONS
September 30—Automotive Industries—Annual Production Issue

Atlantic City, N. J.....July 17
Atlantic City, N. J.....Sept. 25
Charlotte, N. C.....Aug. 23
Dallas, Texas.....Nov. 11
Los Angeles, Cal.....Nov. 25
Salem, New Hampshire.....July 5
Salem, New Hampshire.....Oct. 12

Conventions

American Electric Railway Association, 45th annual, Cleveland, Ohio, exhibition in connection.....Oct. 4-8
Automobile Body Builders' Association, annual, Hotel Statler, Detroit exposition in connection.....June 8-10
Automotive Equipment Association summer convention, Mount Royal Hotel, Montreal, Canada.....June 14-19
National Association of Automobile Show & Association Managers, Drake Hotel, Chicago.....July 27-28

New Franklin Managers

SYRACUSE, N. Y., May 29.—John W. Lee, merchandising manager of the Franklin Automobile Co., announces the appointment of three new district managers: D. S. Dider, Dallas district; F. C. VanDerhoof, Chicago district; and J. Elmo Green, Richmond district. In accordance with the expansion plans recently announced, the company has increased the number of its sales districts, has worked out a proposition for small town dealers and intends to promote a more intensive coverage of territory everywhere. Factory shipments during the first two weeks of May were 92 per cent ahead of the same period in April.

Trade Groups Oppose U.S. Bill to Register Sales

NEW YORK, May 20.—Automobile trade associations are expressing opposition to Senate bill 3511, now before the Senate committee on finance, which would make it unlawful for any person to purchase an automobile without receiving an abstract of title from the seller, or for anyone to sell a car without furnishing such an abstract.

The bill requires the manufacturer to give the abstract to the purchaser and make a report on the first day of each month to the district revenue collector. It also requires every person except the manufacturer to give to the purchaser a bill of sale covering the car, and the purchaser would have to send his abstract of title to the internal revenue collector for registration and pay a fee of \$2.

The associations feel that such a law would be inimical to the interests of the automobile industry. The Chicago Automobile Trade Association has declared that such a law would place a great burden upon the industry as well as upon the private owner of an automobile.

Frisco Plans Radio Show

SAN FRANCISCO, May 29.—The third annual Pacific Radio Exposition will be held in Exposition Auditorium, in the Civic Center of San Francisco, Aug. 21 to 28, inclusive, according to announcement by Arthur H. Halloran, president of the Pacific Radio Trade Association, with headquarters in this city. Anthony A. Tremp, who for five years has been in charge of the annual California Industries Exposition, has been named managing director of the radio show.

Hudson Dealer to Move

EVANSVILLE, Ind., May 29.—Work of alteration will be started Monday on the building at 1122-24 West Franklin street, formerly occupied by the Moutoux Auto and Machine company, to be the new sales and service building of the West Side Hudson-Essex company dealer agency, Paul Drain, manager, announced. The building, when remodeled, will provide a display room for four cars and a fully equipped service department. It is expected to have alterations completed within three weeks. Increased demand for Hudson-Essex products has made the transfer from the present location, 1010 West Franklin street, imperative according to Drain.

Finds Seattle Good

SEATTLE, Wash., May 29.—Washington is the bright spot on the Pacific Coast and Seattle is the bright spot of Washington from the standpoint of automobile sales, declared E. S. Jones, sales manager of the Durant Motor company of California, during his visit in this city this week. This is Mr. Jones' first trip in this territory since his appointment as salesmanager, and is making this trip to get acquainted with dealers and distributors. While here he conferred with Harry Thompson and H. L. Howell of the Howell-Thompson Motor company, distributors in this region.

Prices and Weights of Current Passenger Car Models

SHIP				SHIP				SHIP			
WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE				WT. PASS. BODY STYLE. PRICE			
AUBURN "4-4"				CHRYSLER (Continued)				ESSEX			
.....	5-p	Touring	\$1,145	3060	5-p	Sedan	1,545	2900	5-p	Coach	1,195
.....	5-p	Roadster	1,145	2935	4-p	Royal Coupe	1,695	.....	3-p	Coupe	1,295
.....	5-p	Coupe	1,175	2995	5-p	Brougham	1,745	2779	5-p	Sedan	1,395
.....	5-p	Sedan	1,195	3085	5-p	Royal Sedan	1,795	.....	5-p	"6-65"	.....
"6-66"				3090	5-p	Crown Sedan	1,895	.....	5-p	Touring	1,295
2850	4-p	Sport-Roadster	1,395	(185½ in.)*				.....	4-p	Roadster	1,495
2860	6-p	Touring	1,395	3775	5-p	Phaeton	2,645	2779	5-p	Coach	1,395
.....	3-p	Coupe	1,445	3730	4-p	Roadster	2,885	.....	3-p	Coupe	1,495
3020	5-p	Brougham	1,495	4105	5-p	Sedan	3,395	2900	5-p	Sedan	1,595
3070	5-p	Sedan	1,695	(192½ in.)*				.....	4-p	"8-81"	.....
3070	.....	Wanderer	1,745	4015	4-p	Coupe	3,195	.....	7-p	Roadster	2,315
"8-88"				(198½ in.)*				.....	3-p	Touring	2,265
(129 in. W. B.)				4225	7-p	Sedan	3,595	3000	3-p	Coupe	2,195
3180	4-p	Sport-Roadster	1,695	4260	7-p	Sedan Lim.	3,695	.....	4-p	Coupe	2,095
3200	6-p	Touring	1,695	*Overall length.				.....	5-p	Sedan	2,265
.....	3-p	Coupe	1,745	CLEVELAND "31"				4050	7-p	Sedan	2,765
3380	5-p	Brougham	1,795	2415	5-p	Touring	\$945	ESSEX			
3450	5-p	Sedan	1,995	2565	5-p	Tour'g DeLuxe	1,025	2290	5-p	Touring	.....
3450	.....	Wanderer	2,045	2520	3-p	Coupe	1,035	2455	5-p	Coach	\$789*
(146 in. W. B.)				2695	5-p	Sedan	1,090	*Delivered, Detroit. Mfrs. do not quote F. O. B. prices.			
.....	7-p	Sedan	2,495	2795	5-p	De Luxe Sedan	1,250	FLINT			
BUICK Standard "6"				"43"				2497	5-p	Coach	1,085
2845	2-p	Roadster	\$1,125	2800	5-p	Touring	1,145	2500	5-p	DeL. Coach	1,185
2955	5-p	Touring	1,150	2975	5-p	Sp. Touring	1,295	"B-60"			
3020	2-p	Coupe	1,195	2915	3-p	Coupe	1,225	2683	4-p	Roadster	1,395
3150	5-p	2 d. Sedan	1,195	3145	5-p	Sedan	1,345	2708	5-p	Touring	1,285
3110	4-p	Coupe	1,275	CUNNINGHAM				.....	4-p	Coupe Roadster	1,495
3230	5-p	4 d. Sedan	1,295	4500	4-p	Sp. Touring	\$6,150	3093	5-p	Sedan 4d.	1,525
"Master"				4600	7-p	Touring	6,650	2933	5-p	Brougham	1,525
(120 in. W. B.)				4700	4-p	Coupe	7,600	"E-80"			
3350	2-p	Roadster	1,250	5000	6-p	Limousine	8,100	(120 in. W. B.)			
3515	5-p	Touring	1,295	DAGMAR				3139	4-p	Sport Road.	\$1,945
3670	5-p	2 d. Sedan	1,395	3750	4-p	Roadster	\$3,500	3189	5-p	Touring	1,595
3765	5-p	Sedan	1,495	3800	4-p	Sp. Tourer	3,500	3310	4-p	Sp. Touring	1,945
(128 in. W. B.)				3700	4-p	Phaeton	3,500	3414	4-p	Coupe	2,045
3570	4-p	Sp. Roadster	1,495	4200	4-p	Petite Coupe	4,500	3529	5-p	Sedan	2,195
3635	5-p	Sp. Touring	1,525	4200	4-p	Petite Sedan	4,500	(130 in. W. B.)			
3805	3-p	Country Club	1,765	4500	4-p	De Luxe Coupe	4,750	3294	7-p	Touring	.....
3855	4-p	Coupe	1,795	4700	5-p	Sedan	4,700	3649	7-p	Sedan	2,395
3940	5-p	Brough. Sedan	1,925	4800	7-p	Sedan	4,750	FORD			
4025	7-p	Sedan	1,995	"6-60"				Without Starter and Dem. Rims			
CADILLAC				3150	5-p	Touring	1,785	1526	2-p	Runabout	\$290
"314" Standard Line				3100	2-p	Roadster	1,985	1557	2-p	With Balloon Tires	335
(132 in. W. B.)				3200	4-p	Sp. Touring	1,985	1607	5-p	Touring	310
4110	5-p	Brougham	\$2,995	3500	5-p	Sedan	2,445	1640	5-p	With Balloon Tires	355
4125	4-p	Victoria	3,095	DAVIS				With Starter and Dem. Rims			
4040	2-p	Coupe	3,045	2660	4-p	Roadster	\$1,495	1645	2-p	Runabout	375
4210	5-p	Sedan	3,195	2915	5-p	Legion. Tour.	1,495	1655	2-p	With Balloon Tires	400
4315	7-p	Sedan	3,295	3000	5-p	Sedan	1,595	1728	5-p	Touring	395
4380	7-p	Imperial	3,435	3060	5-p	Imperial Sedan	1,795	1738	5-p	With Balloon Tires	420
Custom Built				3060	5-p	.....	.....	1851	2-p	Coupe	500
(132 in.)				2325	5-p	Touring	\$1,285	1860	2-p	With Balloon Tires	525
4065	2-p	Roadster	\$3,250	2500	5-p	Sedan	1,285	1961	5-p	Sedan, Tudor	525
(138 in. W. B.)				2450	3-p	Coupe	1,285	1972	5-p	With Balloon Tires	545
4125	7-p	Touring	3,250	DIANA "St. 8"				1994	5-p	Sedan, Fordor	565
4100	5-p	Phaeton	3,250	2995	5-p	Roadster	\$1,795	2004	5-p	With Balloon Tires	590
4300	5-p	Coupe	4,000	3170	5-p	DeL Brougham	1,995	FRANKLIN			
4300	5-p	Sedan	4,150	3275	5-p	De Luxe Sedan	2,195	2800	3-p	Sport Road.	\$2,690
4400	7-p	Suburban	4,285	3160	5-p	Cabriolet	2,095	2845	5-p	Touring	2,635
4450	7-p	Imperial	4,485	3640	7-p	Sedan (135 in. W. B.)	2,695	2965	3-p	Coupe	2,645
CASE				.....	5-p	Berline Sedan	2,895	.....	3-5-p	Coupe	2,760
J. I. C.				3640	7-p	Town Car.	.....	3175	5-p	Sedan	2,790
3260	3-p	Roadster	\$1,840	DODGE BROTHERS				.....	4-p	Victoria	2,790
3290	5-p	Touring	1,885	2448	2-p	Roadster	\$ 795	.....	5-7-p	Sedan	2,840
3470	5-p	Sp. Touring	2,160	2538	2-p	Special Roadster	\$ 845	.....	5-p	Oxford Sedan	2,865
3640	5-p	Sedan	2,590	2567	5-p	Touring	795	3080	5-p	Sport Sedan	2,910
3650	5-p	Brougham	2,590	2642	5-p	Spec. Touring	845	3275	7-p	Limousine	2,990
"Y"				2617	4-p	Sport Roadster	880	3135	7-p	Cabriolet	4,400
3950	7-p	Touring	2,225	2589	2-p	Coupe	845	GARDNER			
4320	7-p	Sedan	2,975	2632	2-p	Spec. Coupe	895	3070	4-p	Phaeton	\$1,395
CHANDLER "35"				2811	5-p	Sedan	895	3030	4-p	Roadster	1,395
3090	2-p	Roadster	\$1,695	2883	5-p	Spec. Sed.	945	3290	5-p	Brougham	1,645
3085	5-p	Sport Touring	1,545	2920	5-p	DeL. Sedan	1,075	3210	4-p	Cabriolet	1,695
3223	7-p	Touring	1,645	DUESENBERG				3280	5-p	Imp. Sedan	1,695
3498	5-p	20th C'y Sedan	1,590	Straight "8"				.....	4-p	Phaeton	1,795
3309	5-p	Brougham	1,695	3920	2-p	Roadster	.....	3350	4-p	Sp. Roadster	1,795
3525	5-p	Met. Sedan	1,895	3970	4-p	Roadster	.....	3620	5-p	Brougham	1,895
3594	7-p	Sedan	1,995	3700	5-p	Phaeton	\$6,650	3480	4-p	Cabriolet	1,545
3594	7-p	Berline	2,095	3980	4-p	Sp. Phaeton	.....	3620	5-p	Imp. Sedan	2,095
CHEVROLET "X"				4500	7-p	Sedan	.....	3940	7-p	Sedan	2,795
1780	2-p	Roadster	\$510	DU PONT "D"				GRAY			
1875	5-p	Touring	510	3300	2-p	Roadster	\$2,600	1755	5-p	Touring	.....
2030	2-p	Utility Coupe	645	3550	5-p	Touring	2,600	2055	5-p	Sedan	\$595
2130	5-p	Coach	645	3800	7-p	Touring	2,750	HERTZ			
2215	5-p	Sedan	735	3550	5-p	Touring Sedan	3,400	.....	5-p	Touring	.....
.....	5-p	Landau Sedan	765	DURANT				3800	5-p	Sedan	.....
CHRYSLER "58"				A-22				HUDSON "Super Six"			
2265	2-p	Roadster	\$890	2300	5-p	Touring	\$ 730	3365	7-p	Phaeton	.....
2300	5-p	Touring	845	2380	5-p	Spec. Touring	805	3405	5-p	Coach	\$1,209*
2405	2-p	Club Coupe	895	2450	4-p	Coupe	825	3495	4-p	Brougham 4d.	1,464*
2510	5-p	Coach	935	2480	4-p	Spec. Coupe	875	3645	7-p	Sedan	1,695*
2570	5-p	Std. Sedan	995	2650	5-p	Sedan	880	*Delivered, Detroit. Mfrs. do not quote F. O. B. prices.			
"60"				2710	5-p	Spec. Sedan	995	HUPMOBILE			
2575	5-p	Touring	\$1,075	Straight "8"				"A"			
2545	.....	Roadster	1,145	3920	2-p	Roadster	.....	2620	5-p	Touring	\$1,325
.....	.....	Coupe	1,165	3970	4-p	Roadster	.....	2800	5-p	Sedan	1,385
2780	5-p	Coach	1,195	3700	5-p	Phaeton	\$6,650	.....	4-p	Coupe	1,385
2840	5-p	Sedan	1,295	4500	7-p	Sedan	.....	"48"			
"70"				ELCAR				"48"			
2805	4-p	Roadster	\$1,525	2560	5-p	Touring	\$1,095	5280	4-p	Sportif Tour.	\$7,460
2785	5-p	Phaeton	1,395	.....	4-p	Roadster	1,295	5330	7-p	Touring	7,460
2895	5-p	Coach	1,395	"4-55"				5640	7-p	Touring Lim.	10,050
.....				2560	5-p	Touring	\$1,095	5630	5-p	Victoria Sedan	10,050
.....				.....	4-p	Roadster	1,295	5464	7-p	Brougham	10,050
.....				.....				5588	7-p	Enc. Dr. Lim.	10,050
.....				.....				5600	7-p	Cabriolet	10,300
.....				.....				5105	7-p	Suburban	7,500
.....				.....				4960	6-p	Brougham	7,500
.....				.....				"48"			
.....				.....				5280	4-p	Sportif Tour.	\$7,460
.....				.....				5330	7-p	Touring	7,460
.....				.....				5640	7-p	Touring Lim.	10,050
.....				.....				5630	5-p	Victoria Sedan	10,050
.....				.....				5464	7-p	Brougham	10,050
.....				.....				5588	7-p	Enc. Dr. Lim.	10,050
.....				.....				5600	7-p	Cabriolet	10,300
.....				.....				5105	7-p	Suburban	7,500
.....				.....				4960	6-p	Brougham	7,500
.....				.....				"48"			
.....				.....				5280	4-p	Sportif Tour.	\$7,460
.....				.....				5330	7-p	Touring	7,460
.....				.....				5640	7-p	Touring Lim.	10,050
.....				.....				5630	5-p	Victoria Sedan	10,050
.....				.....				5464	7-p	Brougham	10,050
.....				.....				5588	7-p	Enc. Dr. Lim.	10,050
.....				.....				5600	7-p	Cabriolet	10,300
.....				.....				5105	7-p	Suburban	7,500
.....				.....				4960	6-p	Brougham	7,500
.....				.....				"48"			
.....				.....				5280	4-p	Sportif Tour.	\$7,460
.....				.....				5330	7-p	Touring	7,460
.....				.....				5640	7-p	Touring Lim.	10,050
.....				.....				5630	5-p	Victoria Sedan	10,050
.....				.....				5464	7-p	Brougham	10,050
.....				.....				5588	7-p	Enc. Dr. Lim.	10,050
.....				.....				5600	7-p	Cabriolet	10,300
.....				.....				5105	7-p	Suburban	7,500
.....				.....				4960	6-p	Brougham	7,500
.....				.....				"48"			
.....				.....				5280	4-p	Sportif Tour.	\$7,460
.....				.....				5330	7-p	Touring	7,460
.....				.....				5640	7-p	Touring Lim.	10,050
.....				.....				5630	5-p	Victoria Sedan	10,05

Prices and Weights of Current Passenger Car Models

PRICE
SHIP
WT. PASS. BODY STYLE. PRICE

McFARLAN "6"			
1,945	3700	2-p Roadster	\$2,650
2,045	3700	2-p Spec. Roadster	2,900
2,345	3600	5-p Touring	2,650
2,445	3600	7-p Touring	2,750

"SV"			
3,180	3850	5-p Brougham 4d.	\$3,180
3,180	3850	4-p Coupe	3,180
3,180	3850	5-p Sedan	3,180
3,180	3850	7-p Spec. Sedan	3,180
3,280	3850	5-p Sedan	3,280
3,380	3850	Sub. Sedan	3,380
3,480	3850	Sub. Sedan	3,480

"TV"			
5,400	4000	2-p Roadster	\$5,400
6,720	4000	4-p Sp. Touring	6,720
6,720	4000	4-p Coupe	6,720
6,810	5200	7-p Tour. Sedan	6,810
6,810	5200	7-p Tour. Sedan	6,810
6,810	5200	7-p Sedan	6,810
6,810	5200	7-p Spec. Sedan	6,810
7,110	5200	7-p Enc. Sedan	7,110
7,110	5200	7-p Sub. Sedan	7,110
9,000	5200	7-p Town Car	9,000

"Straight 8"			
2,650	4000	2-p Roadster	\$2,650
2,900	4000	4-p Roadster	2,900
2,650	4000	5-p Touring	2,650
2,750	4000	5-p Sedan	2,750
3,180	4000	5-p Sub. Sedan	3,180
3,380	4000	7-p Sedan	3,380
3,280	4000	7-p Sub. Sedan	3,280
3,480	4000	4-p Coupe	3,480
3,180	4000	5-p Coach Broug.	3,180
3,180	4000	5-p Town Car	3,180

MARMON			
"74"			
3,295	3827	4-p Speedster	\$3,295
3,295	3827	2-p Speedster	3,295
3,295	3827	5-p Phaeton	3,295
3,295	3827	7-p Touring	3,295
3,295	3827	5-p Std. Brougham	3,295
3,295	3827	2-p Std. Coupe	3,295
3,295	3827	4-p Victoria	3,295
3,295	3827	5-p Sedan	3,295
3,295	3827	7-p Sedan	3,295
3,295	3827	5-p Spec. Broug.	3,295
3,295	3827	5-p Spec. Sedan	3,295
3,295	3827	5-p Spec. Sedan	3,295
3,295	3827	5-p Sedan De Luxe	3,295
3,295	3827	5-p Sedan De Luxe	3,295
3,295	3827	5-p Sedan Lim.	3,295
3,295	3827	5-p Sedan Lim.	3,295

MOON			
Series "A"			
1,395	3600	5-p Roadster	\$1,395
1,395	3600	5-p Touring	1,395
1,395	3600	5-p Cab. Roadster	1,395
1,395	3600	5-p DeL. Brougham	1,395
1,395	3600	5-p DeL. Sedan 4d.	1,395

NASH			
"Light Six"			
865	3210	5-p Touring	\$865
865	3210	5-p Sedan	865
"Special"			
1,115	3270	2-p Roadster	\$1,115
1,115	3270	5-p Touring	1,115
1,115	3270	5-p Business Coupe	1,115
1,115	3270	5-p Sedan 2d.	1,115
1,115	3270	5-p Sedan 4d.	1,115
1,115	3270	5-p Sedan 4d.	1,115

"Advanced"			
1,475	3390	4-p Roadster	\$1,475
1,475	3390	5-p Touring	1,475
1,475	3390	5-p Sedan 2d.	1,475
"Advanced"			
1,490	3480	7-p Touring	\$1,490
1,490	3480	4-p Victoria	1,490
1,490	3480	5-p Coupe 4d.	1,490
2,090	3830	7-p Sedan	2,090

OAKLAND			
"6"			
1,175	2600	4-p Sp. Roadster	\$1,175
1,025	2600	5-p Touring	1,025
1,025	2600	5-p Coach	1,025
1,025	2600	5-p Landau Coupe	1,025
1,025	2600	5-p Sedan	1,025
1,025	2600	5-p Landau Sedan	1,025

OLDSMOBILE			
"30"			
875	2235	5-p Touring	\$875
875	2235	4-p DeL. Roadster	875
875	2235	5-p DeL. Touring	875
875	2235	2-p Coupe	875
875	2235	5-p Coach	875
875	2235	5-p De Luxe Coupe	875
875	2235	5-p De Luxe Coach	875
875	2235	5-p Sedan	875
875	2235	5-p De Luxe Sedan	875

OVERLAND			
"91" 4			
495	1919	5-p Touring	\$495

SHIP
WT. PASS. BODY STYLE. PRICE

OVERLAND (Continued)			
595	2202	5-p Std. Sedan 2d	595
595	2205	5-p Sedan De Luxe	595
"93" 6			
895	2395	5-p Touring	\$895
895	2397	2-p Coupe	895
895	2443	4-p Std. Sedan	895
1,095	2584	5-p Sedan De Luxe	1,095

PACKARD			
"6" (126 in. W. B.)			
2,785	3643	4-p Roadster	\$2,785
2,585	3653	5-p Phaeton	2,585
2,585	3753	4-p Coupe	2,585
2,585	3937	5-p Sedan	2,585
"133 in. W. B.)			
2,785	3793	7-p Touring	\$2,785
2,785	4043	7-p Sedan	2,785
2,785	4133	7-p Club Sedan	2,785
2,885	4133	7-p Sedan Lim.	2,885

"8" (136 in. W. B.)			
3,950	4060	4-p Runabout	\$3,950
3,750	4090	5-p Phaeton	3,750
4,650	4242	4-p Coupe	4,650
4,750	4528	5-p Sedan	4,750

"143 in. W. B.)			
3,950	4199	7-p Touring	\$3,950
4,800	4655	5-p Club Sedan	4,800
5,000	4710	7-p Sedan	5,000
5,100	4710	7-p Sedan Lim.	5,100

PAIGE			
"6-72" (125 in. W. B.)			
1,495	3500	5-p Std. Sedan	\$1,495
1,495	3500	5-p Sedan De Luxe	1,495
2,295	3500	4-p Cab Roadster	2,295
2,295	3500	7-p Sedan	2,295
2,245	3500	7-p Limousine	2,245

"115 in. W. B.)			
1,295	3500	5-p Brougham	\$1,295
"6-72" (126 1/2 in. W. B.)			
1,895	3175	5-p Touring	\$1,895
2,295	3425	5-p Coupe	2,295
2,395	3500	5-p Sedan	2,395

PEERLESS			
"133 1/2 in. W. B.)			
2,195	3275	2-p Roadster	\$2,195
1,995	3300	7-p Sp. Touring	1,995
2,595	3700	7-p Sedan	2,595
2,695	3825	7-p Limousine	2,695
2,795	3825	5-p De Luxe Sedan	2,795
2,995	3650	7-p De Luxe Sedan	2,995

"8-80"			
1,395	2800	5-p Phaeton	\$1,395
1,495	2950	5-p Roadster	1,495
1,495	3140	5-p Sedan	1,495
1,795	3140	5-p Std. Sedan	1,795
1,795	3140	5-p De Luxe Sedan	1,795

"8-69"			
2,995	3675	5-p Roadster	\$2,995
3,495	3950	5-p Sedan	3,495
3,595	4025	7-p Sedan	3,595
3,795	4100	7-p Ber. Limousine	3,795

PIERCE-ARROW			
"80"			
2,895	3245	2-p Runabout	\$2,895
3,095	3300	4-p Phaeton	3,095
3,895	3425	4-p Phaeton	3,895
3,150	3470	5-p Coach 2d.	3,150
3,250	3525	5-p Coach 4d.	3,250
3,350	3620	7-p Coach	3,350
3,395	3375	4-p Coupe	3,395
3,395	3480	5-p Sedan	3,395
3,395	3600	7-p Sedan	3,395
3,395	3655	7-p Sedan	3,395
3,395	3675	7-p Enc. Dr. Lim.	3,395
3,450	3675	7-p Lim. Coach	3,450

"33"			
5,250	4350	2-p Runabout	\$5,250
5,250	4500	4-p Touring	5,250
5,250	4590	7-p Touring	5,250
5,250	4730	3-p Coupe	5,250
6,800	4800	4-p Sedan	6,800
6,900	4750	7-p Sedan	6,900
6,900	4730	4-p Coupe Sedan	6,900
6,900	4850	7-p Brougham	6,900
6,900	5060	7-p Limousine	6,900
6,900	4780	7-p Enclosed Lim.	6,900
6,900	4730	6-p French Lim	6,900
6,900	4730	6-p Landaulet	6,900

PONTIAC			
825	2270	2-p Coupe	\$825
825	2235	5-p Coupe	825

REO			
"T-6"			
1,665	3375	2-p Roadster	\$1,665
1,395	3182	5-p Sp. Touring	1,395
1,495	3365	5-p Coupe	1,495
1,565	3365	5-p Spec. Coupe	1,565
1,565	3515	5-p Sedan 4d.	1,565
1,745	3565	5-p Spec. Sedan	1,745

SHIP
WT. PASS. BODY STYLE. PRICE

REVERE			
"25"			
2,750	3900	2-p Sp. Roadster	\$2,750
2,750	3975	4-p Speedster	2,750
2,750	4050	5-p Touring	2,750
3,800	4300	5-p Sedan	3,800

"M"			
3,200	3700	2-p Roadster	\$3,200
3,200	3970	4-p Sportster	3,200
3,200	3970	5-p Touring	3,200
4,000	4400	5-p Sedan	4,000

RICKENBACKER			
"E"			
1,750	3038	5-p Touring	\$1,750
1,795	3068	7-p Touring	1,795
1,795	2953	4-p Roadster	1,795
1,495	3115	5-p Coupe-Sedan	1,495
1,795	3202	5-p Brougham	1,795
1,920	3092	4-p Coupe Roadster	1,920
1,995	3040	4-p Coupe De Luxe	1,995
1,995	3317	5-p Sedan	1,995
2,195	3353	7-p Sedan	2,195

"B-8"			
2,195	3227	4-p Roadster	\$2,195
2,195	3315	5-p Touring	2,195
2,195	3355	7-p Touring	2,195
2,195	3355	4-p Sup. Sp. Road-	2,195

ROAMER			
"6-50-55"			
1,295	3445	5-p Coupe Sedan	\$1,295
2,095	3486	5-p Brougham	2,095
2,295	3345	4-p Coupe Roadster	2,295
2,320	3603	4-p Coupe DeLuxe	2,320
2,395	3640	5-p Sedan	2,395
2,495	3640	5-p Sedan	2,495
5,000	3640	4-p Sup. Sp. Sedan	5,000

"6-54-E"			
2,385	3445	4-p Roadster	\$2,385
1,985	3445	4-p Tourer	1,985
2,285	3445	4-p Sport	2,285
2,285	3445	4-p Tourer	2,285
2,750	3445	3-p Cabriolet	2,750
2,950	3445	5-p Sedan	2,950



**One half
of all
chassis models
have
Lockheeds**

**The fact that you will find
Lockheed-Hydraulics on fully
one-half of all chassis models
made in America means:**

1st, that approximately one-half of all the motor car engineering organizations in America have approved Lockheeds; and

2nd, that Lockheed Hydraulics are the only four wheel brakes which have received any-

thing like general approval of American motor car engineers.

The approval of the engineers is reflected by the attitude of the public.

A recent questionnaire reveals that more than twice as many owners of cars equipped with two-wheel brakes, favor Lockheed Hydraulics as against all the various kinds of mechanical four-wheel brakes.

HYDRAULIC BRAKE COMPANY, DETROIT, U. S. A.

LOCKHEED HYDRAULIC

Four BRAKES *Wheel*

Mechanical Specifications of Current Passenger Car Models—Continued

(This list comprises cars distributed on a national basis)

MAKE AND MODEL			ENGINE										ELECTRICAL SYSTEM			REAR AXLE			BRAKES			STEERING GEAR—Type and Make			REAR SPRINGS—Type and			CHASSIS LUBRICATION—Type and Make			ABBREVIATIONS—NAMES OF MFRS. OF STOCK PARTS		
Wheel Base (Inches)	Tire Size	Model	Bore and Stroke	Rated H.P.	Piston Displacement	Valve Arrangement	Camshaft Drive	Piston Material	No. Main Bearings	Drainage Vibration	Oiling System	Cooling System	Thermoset	Radiator	Shutters?	Carburetor	Air Cleaner?	Ignition System	Generator and Starter Make	Clutch—Type and Make	Gear Set—Make	Universal—Type and Make	Type and Make	Location	Hand Type	4 Wheel Type	Length	Chassis Lubrication—Type and Make	Abbreviations—Names of Mfrs. of Stock Parts				
74	34x7.30	Marmen	3 3/8 x 4 1/2	33.8	1	He.	Al.	3	N	P.F.	Pu.	N	N	Sch.	N	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	3/4	Own.	Var.	E-R	I-R	Own.	O-45	Bowen	A-K—Atwater Kent		
SV	33x6.20	Wia	Y 6-3/8 x 4 1/2	27.3	1	Ch.	CI	3	...	P.F.	Pu.	N	...	Ray.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	A-L—Auto-Lite			
SV	33x6.20	McEwan	3 3/8 x 4 1/2	33.8	1	Ch.	CI	3	...	P.F.	Pu.	N	...	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	Ada—Adams			
TV	33x6.20	McEwan	3 3/8 x 4 1/2	33.8	1	Ch.	CI	3	...	P.F.	Pu.	N	...	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	Ala—Alameda			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
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113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
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113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
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113	30x5.25	London	3 3/8 x 4 1/2	27.3	1	Ch.	CI	4	N	P.C.	Pu.	N	N	Sch.	...	N	N	Delco	Delco	D. Own.	Own.	m-Spl.	1/2	Tim.	4.27	E-F	Own.	S-48 1/2	Own.	B&B—Borg & Beck			
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113	30x5.25	London	3 3/8 x 4 1/2	2																													

KEY TO SYMBOLS
 *—At extra cost
 †—Ballons at extra cost
 1/2—Semi-floating
 3/4—Three-quarter floating
 A—Air
 Al—Aluminum
 B—Semi-steel
 B-1†—Both internal and external four wheels
 BO—Revol Gear Overhead at 60°
 CB—Chain



The Triumph of a Principle

Eager Thousands Giving the
New, 90-Degree, Eight-Cylinder Cadillac
The Greatest Success in Its History



The buying habits of American motorists are undergoing a profound change and reaching up to something better. The new thousands who are aligning themselves with the old Cadillac army are symptomatic of a general disposition to seek and find quality which is sound and assured. Q A new triumph is being spontaneously accorded to the time-proven Cadillac principle of manufacturing—hold fast to that which is good and strive constantly for the very best attainable. Q The effort to supplant Cadillac in public confidence has dwindled steadily through the years—Now Cadillac finds itself almost alone in its own fine field with new thousands flocking to the Cadillac standard.

Priced from \$2995 upward, f. o. b. Detroit

NEW 90 DEGREE

CADILLAC

DIVISION OF GENERAL MOTORS CORPORATION



Circles NORTH POLE!



Supreme Test Proves Perfect Performance OF **STROMBERG Carburetor**

*Stromberg Air-Craft
Carburetor
Model NA-U5G*

1560 Miles in Zero Temperature in 15 Hrs. and 51 Mins.

Commander Byrd made his epoch making flight to the North Pole and return May 9th, in the face of innumerable obstacles and hardships. One of the big reasons for the success of his gigantic undertaking, which was made without a hitch, was the *perfect performance of the Stromberg Carburetors* with which his three Wright Whirlwind Air-Cooled engines were equipped. These were the Stromberg Carburetors Air Craft Models NA-U5G.

This is just another record breaking feat which proves conclusively the ability of Stromberg Special Carburetors to perform perfectly under all conditions.

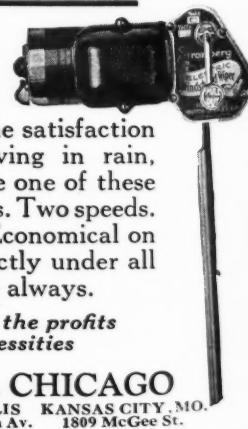
SUPREME ON LAND, AIR AND WATER



Stromberg Super Shock Absorbers

Give greatest comfort because they regulate spring action to the correct degree. For balloon or standard tires. Working parts protected against dirt, water and oil. Steel cable will not rust, stretch or break. No adjustment; no oiling or greasing. Made to measure for each make of car. Your trade will want them once they know them.

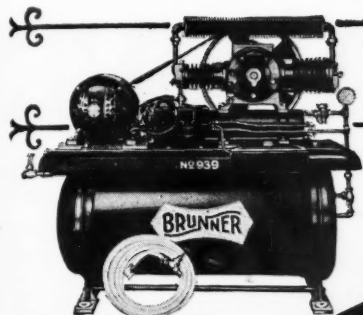
Stromberg Electric Windshield Wiper



Your customers cannot know the satisfaction and feeling of safety while driving in rain, fog, sleet or snow until they have one of these perfect vision wipers on their cars. Two speeds. Adjustable pressure on glass. Economical on battery current. Operates perfectly under all driving conditions. Dependable always.

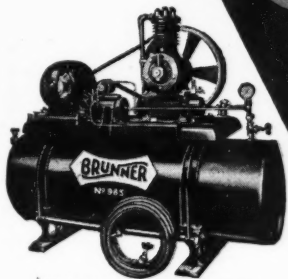
*Don't fail to get your share of the profits
on these popular auto necessities*

STROMBERG MOTOR DEVICES CO., 58-68 East 25th Street, CHICAGO
Direct Factory Branches NEW YORK 517 W. 59th St. BOSTON 760 Commonwealth Av. DETROIT 84-86 Hancock Av., W. MINNEAPOLIS 1609 Hennepin Av. KANSAS CITY, MO. 1809 McGee St.

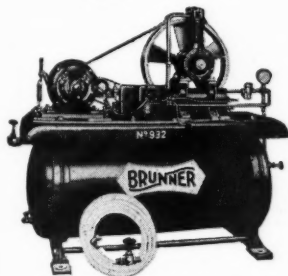


BRUNNER MODEL
Assembled Unit 939
A two stager

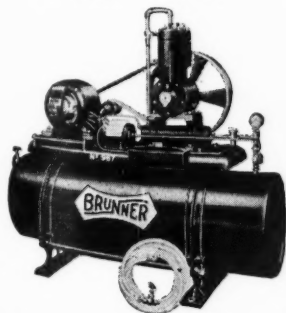
BRUNNER
MODEL
ASSEMBLED
UNIT
965



BRUNNER MODEL
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UNIT 932



BRUNNER MODEL
ASSEMBLED
UNIT 967



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BRUNNER AIR SERVICE

DEPENDABLE air service is a business builder and a source of profit in the shop.

Brunner equipment is made with the finest materials—selected because they have proven by thorough test to be DEPENDABLE.

Brunner equipment is DEPENDABLE because it is made by pioneers—the oldest and largest manufacturers of garage air compressors in the world. *You can buy cheaper air compressors, but not better ones.*

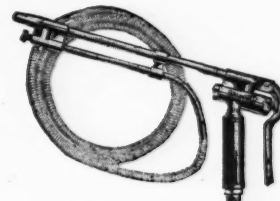
BRUNNER MFG. COMPANY

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BRUNNER ENGINE
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The greatest garage tool on the market. No garage or service station can afford to be without one.



BRUNNER PAINT
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Flat spray, designed especially for Duco and other Pyroxalin finishes. Easy to hold without tiring. Absolutely leakproof.



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MFG. CO.,
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Gentlemen:
Please send me a copy
of "Air Profits."

Name.....

Address.....

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Address.....

When You See a "Hex" Think of BLACKHAWK



Here's Your Selling Partner

This steel display case should be working for you right now when all roads are thronged with cars. Automobile mechanics, Ford, Chevrolet, Dodge and other car owners are live prospects for Blackhawk Wrenches.

From this case you can sell a set for any car, and often include a Blackhawk steel case to carry it. A real sale!

Put this Blackhawk Display Cabinet on your selling force and watch it build wrench business for you. Ask how to get the "Q.D." Cabinet free.

Blackhawk Manufacturing Co.
Dept. S, Milwaukee Wisconsin

BLACKHAWK WATER PUMPS For Fords

— are making sales records everywhere. They outpump and outsell. Push the "Chief" for quality trade, and the "Scout" as a \$5 seller. Both have Turbine Head, bronze bearings, flanged drive pulley. Fit 1926 and previous model Fords. Steel display free with order for 6 pumps.



THE "CHIEF"
—with double grease lubrication. Complete with belt and horn bracket, list — \$7.50.

THE "SCOUT"
—has many "Chief" features. Complete as above \$5.00



Sells "Q.D." Wrenches in Sets!

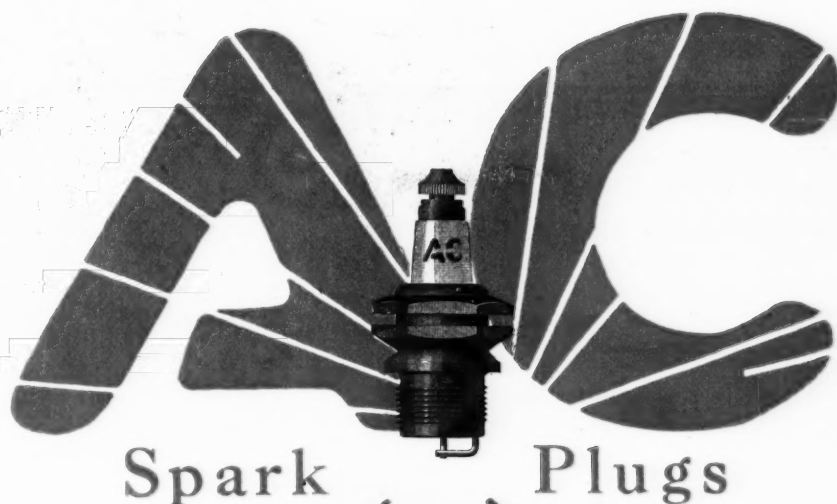
This handsome steel cabinet holds a full assortment of "Q.D." handles and sockets—from it you can quickly assemble a set for any car. Put it where your customers can see it, and watch it sell sets. Set book furnished with cabinet. See your jobber, or write us.

NEW LOW PRICES

that mean

NEW SALES OPPORTUNITIES

on



Powerful advertising, headed by The Saturday Evening Post issue of July 10th, will announce to the world important reductions in the retail prices of AC Spark Plugs, as follows:

AC Spark Plugs... old price \$1 ... new price 75c
 AC 1075 (for Fords). old price 75c ... new price 50c

This means new and increased spark plug business for AC dealers who are ready and prepared to cash in on it

Both automobile manufacturer and owner are seeking one thing—*reliable and economical operation.*

That's why 148 manufacturers use and millions of owners insist upon AC products.

AC-SPHINX
Birmingham
ENGLAND

AC Spark Plug Company, FLINT, Michigan
Makers of AC Spark Plugs—AC Speedometers—AC Air Cleaners—AC Oil Filters

AC-OLEO
Levallois-Perret
FRANCE

This is the first article of a series predicting the future trend of American motor car design.



The Car of the Future

A new and wholly different type of automobile will soon be announced in America. A motor car that combines the advantages of European light car design, with new American performance standards.

FOR years American travelers have returned from Europe with tales of the remarkable light motor cars that throng the boulevards of France and speed so rapidly along the roads of England.

These cars are smaller, lower, faster than any light automobile America has ever known.

Light in weight, they are engineered to give car owners relief from heavy taxation.

They are very economical in fuel consumption, because of small piston displacement, yet surprisingly agile and fast on the road.

This trend of European engineering has led to the super-development of four-wheel brakes, quicker stopping, greater safety, speedier acceleration and more efficient all round performance.

It has set the pace for an entirely new-type of American automobile.

For several years, the engineers of one of the five largest automobile manufacturers in America have been studying at first-hand

these European developments. Working in intimate contact with leading French and English engineering authorities, they have perfected a revolutionary new-type of automobile.

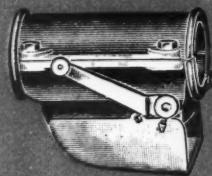
A motor car that dramatically shatters all former precedents and combines for the first time the recent scientific developments of European engineers, with new and greatly improved standards of American performance.

A motor car with an amazingly low center of gravity—that provides greater speed, greater safety, greater economy and more comfort than found in any American-built light car before.

With this new factor in the field, old-fashioned cars will be harder to sell—harder to trade—the whole automobile situation will change in the next 30 days.

It opens up wonderful franchise opportunities—advance information will be supplied to dealers who write Box Number 6267 Motor Age.

Watch for Next Weeks Article



Specially for Chevrolet Owners

At \$4.00, it earns its cost many times over. Like other Cooper products, it is a real trouble preventer.

Cooper Senior Dash Control

A handy, handsome control for Cooper cut-out, choke, radiator shutter, heater valve, etc. Twist of wrist locks it in any position. Price \$2.50.



The Greatest Friend a Motor Ever Had

The Cooper special cut-out is a scientifically designed engine tester that warns of motor trouble, faulty ignition or poor compression. It is the watchdog of the engine—a time, trouble and money saver.

When a Ford owner—or any other car owner—comes into your place of business—GRAB HIM. He's a live, willing prospect for the Cooper.

No man living wants to pay unnecessary repair bills. No one wants motor trouble on a lonesome country road at 3 a. m. Any careful motorist will gladly pay a few dollars for engine protection. Show him why he needs the Cooper and HE WILL BUY. Reasonably priced at \$2.50 for Fords. Larger cars up to \$5.00. See your jobber—or write direct for information and discounts.

COOPER MANUFACTURING COMPANY

433 South First Avenue

Marshalltown, Iowa

Exclusive Sales Representatives

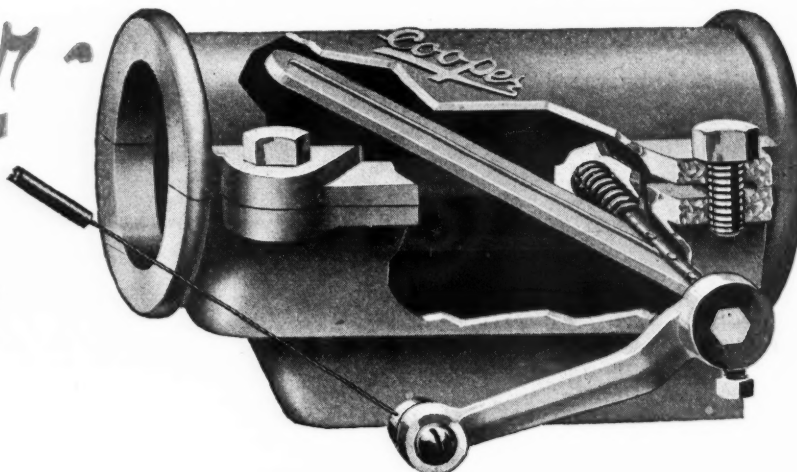
THE FULTON COMPANY, Milwaukee, Wis.

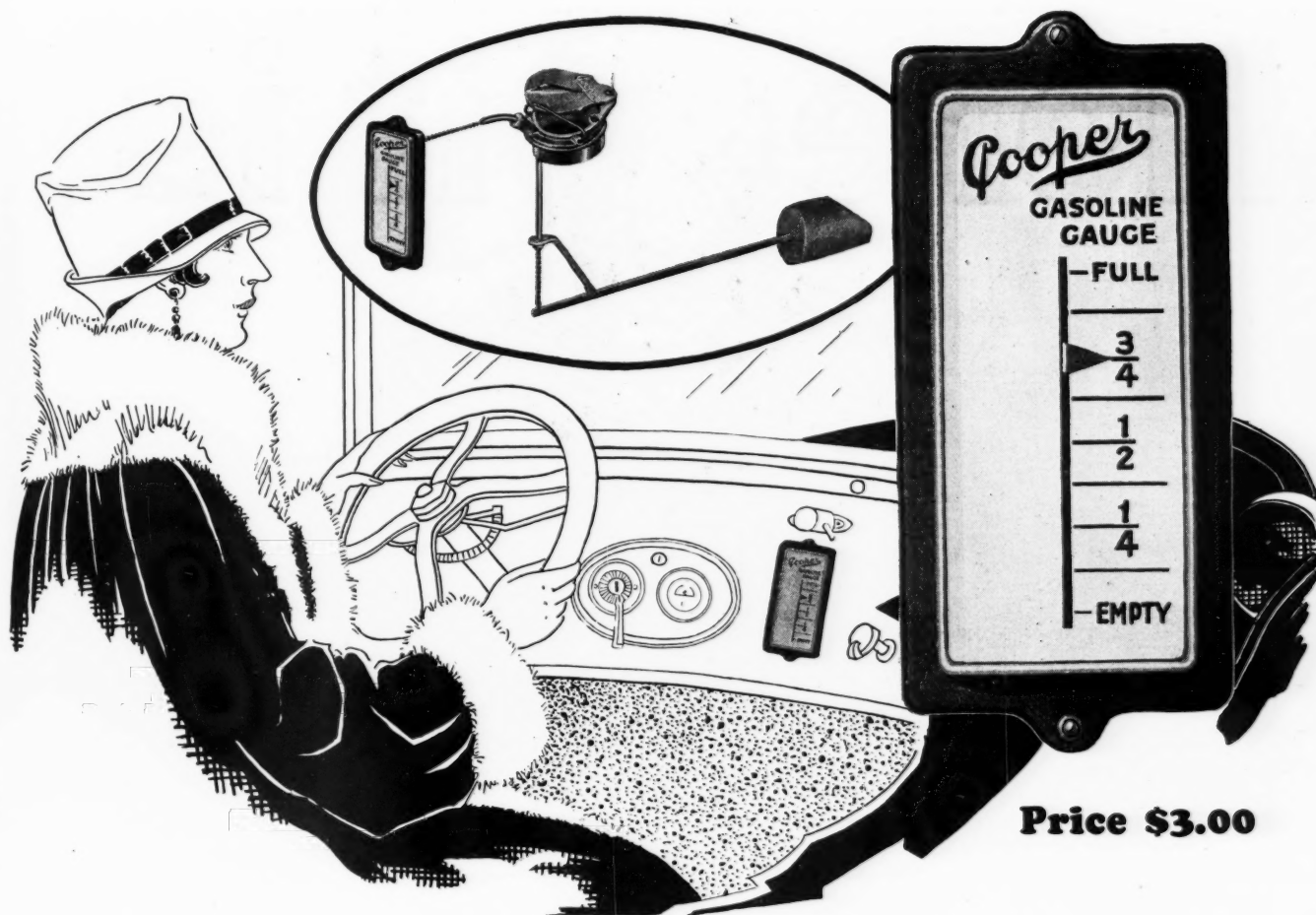
Ten Sales Boosters

1. A scientifically designed engine tester.
2. Blows out loosened carbon.
3. Easily installed without severing or weakening exhaust pipe.
4. Ruggedly made with extra heavy flapper and spring.
5. Chatterproof, silent when closed.
6. Increases power of motor.
7. Saves gasoline.
8. Self cleaning. Mud, water and dust proof.
9. Relieves back pressure on motor.
10. A combination muffler cut-out, engine tester and carbon outlet valve combined.

The
Cooper
CUT-OUT

Engine Tester and Carbon Outlet Valve





Price \$3.00

How Much Gas In The Tank?

This Gas Gauge Tells

Raining pitchforks—car suddenly stops. There's only one answer. Out of gas! What a time to have it happen! Through the downpour to the nearest gas station. Soaked clear through. Mad clear through. Forgot to look in the tank before starting out.

Every motorist has had that bitter experience. With the Cooper Dash Gasoline Gauge it could never happen. For always right in full view of the driver where it should be the amount of gas in the tank is indicated. A simple device, thoroughly accurate, easily installed, and universally welcomed by owners. No trick to sell it. Built by Cooper—therefore of guaranteed quality. See your jobber.

COOPER MANUFACTURING COMPANY

433 South First Avenue

Exclusive Sales Representatives

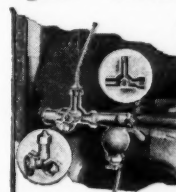
Marshalltown, Iowa

THE FULTON COMPANY, Milwaukee, Wisconsin

Cooper

**Dash
Gasoline Gauge**

[For New Model Ford]



Cooper Reserve Valve

Merely open this valve and the last gallon of gas in the tank is released for use in driving to the nearest filling station. Has a wide appeal and big profit making possibilities. Price \$1.50



Cooper Spare Tire Lock

Tire thieves keep away from it. Locks tire, rim and carrier to car, therefore, 100% efficient. The new idea in tire locks. Price \$1.00.



Unequalled for Range and Power

Here is Power to bring in the distant stations—power to build up the weak signals from smaller stations and make them into “radio”—super-power perfectly controlled, from a whisper to a roar.

It Tunes all Stations

Here's radio at its best—a Super-Power Radio Set that tunes the entire wave band—from the lowest to the highest—from 200 meters to 550 meters [the official wave band]. The stations are accurately separated on the dials—there is no crowding of stations on one dial setting—you get them all—but just one at a time.

A Big Powerful 6-Tube Set

The 1927 Model NEUTROWOUND is a real six-tube super-power set. Six powerful tubes—every one effective, produce wonderful volume, pure and clear. All six tubes are used to produce radio, and not a one is put there for effect, or to neutralize a shortcoming elsewhere. When you buy a NEUTROWOUND you are not paying for six tubes

and getting five tube results—you get six tube performance—distance, volume, tone quality and selectivity. You get the entire range of the wave band—all the radio there is—noiselessly, and free from howls, distortion and interference.

3 Stages of Audio-Amplification

NEUTROWOUND has three tubes [three stages] of audio-frequency amplification. That tells the story—radio without a compromise—power with pure tone quality. You get that perfect balance between selectivity and volume which is necessary to meet the varying radio conditions.

All Metal “Shielding” Case

The Neutrowound is the first radio set ever made with an all-metal case. Radio engineers have endeavored to apply the shielding principle—without obtaining successful results. Our engineers have developed and perfected this principle, and have designed an all-metal case that not only serves as a sturdy protection for the vital parts of the receiving set—but also acts as an electro-magnetic shielding against outside interference.

NEUTROWOUND RADIO MFG CO., Dept. 665, Homewood, Ill.
Radio Division, ADVANCE AUTOMOBILE ACCESSORIES CORP'N

The 1927 Model SUPER-POWER Neutrowound

Neutrowound Radio Receiving Sets are manufactured under our own patents and under a Reciprocal License from the Navy Department of the United States Government

Super-Power Under Positive Control

The Neutrostat is a specially designed unit—used exclusively on the Neutrowound—that controls the oscillation of the set on all wave lengths, reduces "B" battery consumption, and enables distant stations to be tuned in with the volume and clarity of local stations.

The Neutrostat actually makes it possible to "build up" the strength of any signal, that has sufficient intensity to be detected, to the power and volume of local reception.

It varies the effective plate potential, which governs the output energy, and makes it possible to obtain the ultimate radio amplification—consistent distant reception—unusual selectivity—clarity and volume—all far beyond anything that has been obtained heretofore, by any receiving instrument.

Why It Has 3 Dial Control

A radio set has three distinct circuits, each tuned by a variable condenser. Efficient tuning of distant stations depends upon putting these three circuits into resonance with each other and with the broadcasting station. This can be done only by individual control of each condenser.

NEUTROWOUND'S outstanding station getting ability is recognized wherever good radio is known. We are unwilling to sacrifice in the least this first essential of a radio set in a futile attempt to do something which, in itself, is electrically and mechanically impossible. Neutrowound retains individual control of variable condensers as indispensable to good radio.

\$85

Buys a NEUTROWOUND Six-Tube, Super-power set, and you couldn't buy more radio if you spent a thousand dollars.

West of Rockies, \$90 In Canada, \$115

Station WOK—operating on 5000 Watts—wave length 217.3 meters—owned and operated by NEUTROWOUND RADIO MFG. COMPANY, HOMEWOOD, ILL.

DEALERS: Fill out and mail coupon for full information about the 1927 Super-power NEUTROWOUND and our exclusive territory proposition to sub-distributors.

NEUTROWOUND RADIO MFG. CO.

Dept. 665, HOMEWOOD, ILL.

Radio Division Advance Automobile Accessories Corporation

How the Stations are Separated

The specially designed Straight Line Frequency, variable Condensers, used exclusively in the Neutrowound, space out the stations evenly on the dials. They are designed and manufactured to close precision limits, to give absolute straight line frequency dial calibration, and prevent the *piling up or crowding of stations on one dial setting.*

These condensers are of the low-loss type, which insures sharper tuning and greater receiving efficiency. They are designed especially for the purpose of tuning the receiving circuit to any desired wave length, or station. The intervals between the stations are all equal—the separation is the same throughout the entire wave band—therefore all stations come in with positive regularity at exactly their allotted space on the dials.

Only One Model—Easy to Sell

Neutrowound is made in but one model—a precision instrument of the finest quality—handsomely finished. In this one model is contained all the Radio that it is possible to buy at any price.

No Cut Prices—No Bargain Sales

Neutrowound is sold exclusively through Authorized Distributors and Sub-Distributors—who are fully protected. It is not sold by "Gyps," Department Stores or Cut Price Stores, yet during the past season we were absolutely unable to build enough sets to fill the flood of orders that we received. It was the outstanding success of the year—yet there was not a single Neutrowound Set advertised at "Bargain Prices" throughout the entire United States.

Dealers Coupon

NEUTROWOUND RADIO MFG. CO.

Dept. 665, Homewood, Ill.

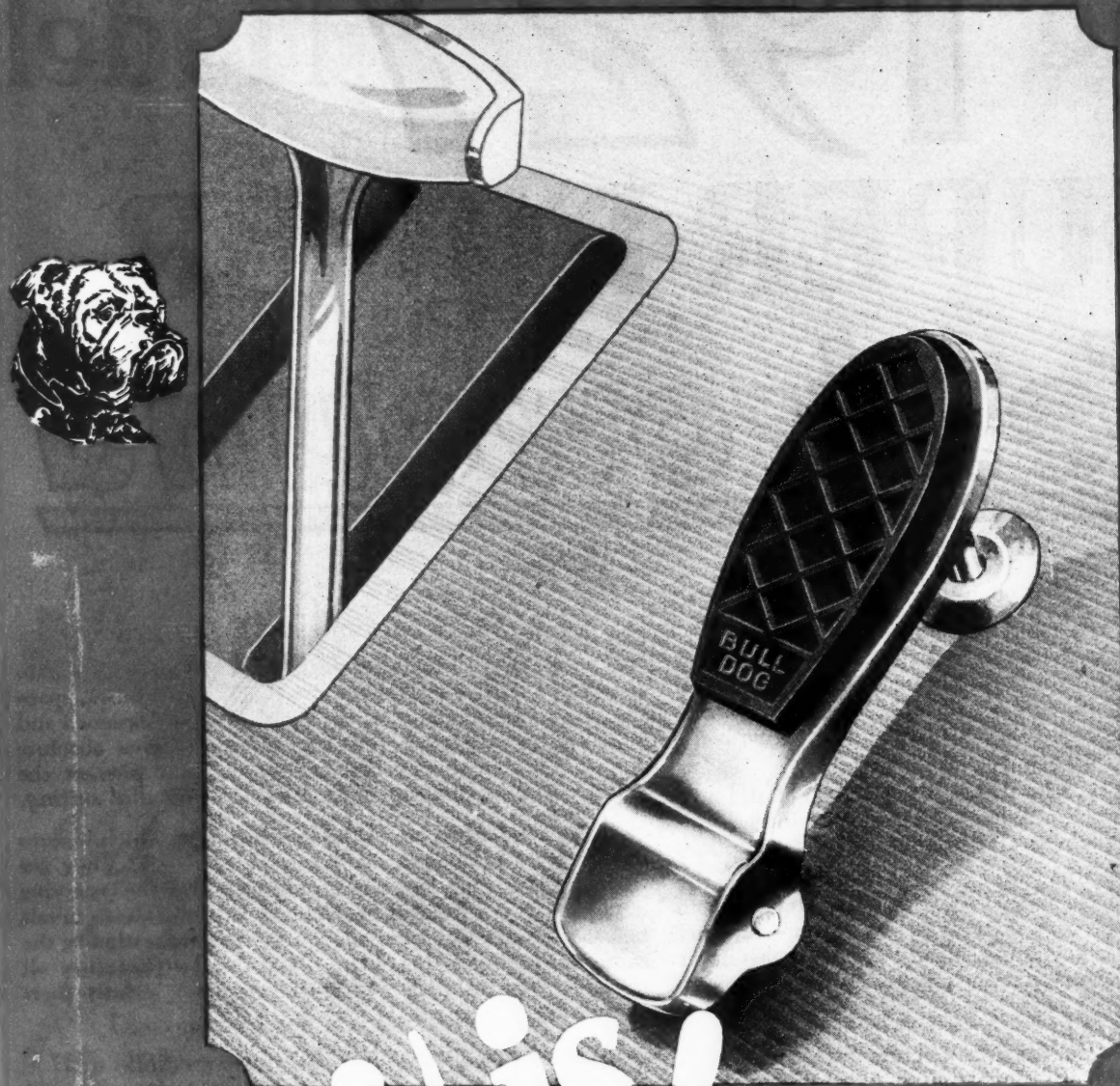
Send complete information Dealers' Discounts and Neutrowound Sales Plan.

Name.....

Street.....

City.....

State.....



Here it is!

the new hinged type
"Bull Dog"
 FOOT ACCELERATOR *for FORDS*

Pedal is fully nickel-plated—fine appearance—the same reliable Bull Dog construction under the floor boards—and priced at only

\$1.50

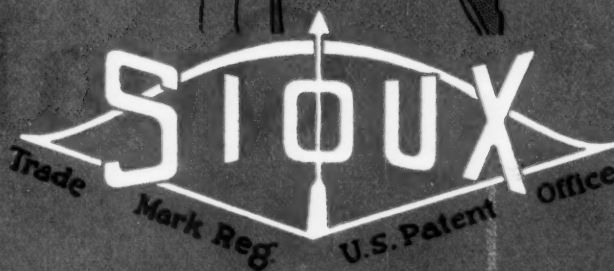
THE most restful accelerator foot action ever developed is embodied in this advanced Bull Dog. The exclusive foot rest principle alone will decide any Ford owner,

in favor of this better accelerator. Easily installed—without cutting a large, ugly hole in the mat. Mat and floor boards may be removed and replaced in a jiffy.

THE W. H. THOMAS MANUFACTURING COMPANY, SPENCER, IOWA

VALVE SEAT REAMER SETS

UNIVERSAL
TYPE



SET NO. 38 NET PRICE COMPLETE \$30



SET NO. 25 NET PRICE COMPLETE \$20

Old Methods Must Go!

The NEW Sioux Reamers are so absolutely different and better—they do the work with such greater ease, smoothness and accuracy—that it doesn't pay to waste time and energy with old style reamers. The Nicked Tooth feature of Sioux 15° and 75° Reamers absolutely eliminates chattering. Sioux oversize pilot stems, for worn guide holes, prevent wobbling or traveling, insuring better work.

The handy sets shown here include 45° Roughing Reamers for removing hard carbon deposits, 45° Finishing Reamer, 15° and 75° Nicked Tooth Reamers for narrowing valve seats, pilot stems [including oversizes] and T handle.

No. 38 Set handles 90% of all motors.
No. 25 Set for all Fords and Fordsons, Chevrolet, Durant, Essex 6, Oakland, Oldsmobile "30" and Velie.

Your Jobber Sells Them

ALBERTSON & CO.

SIoux CITY, IA.

Price range— Quality— Profits

*Peerless offers a well-rounded
franchise to good dealers*

CHECK the prices on the opposite page. You can see with half an eye just what they mean to dealers.

Three separate models! Three separate price ranges! Three separate chances for business!

That's what Peerless offers. That's the well-rounded proposition that has brought hundreds of the country's best distributors and dealers into the Peerless organization in the last few months.

The Peerless franchise has always been a money maker for dealers. Today, with Peerless quality higher than ever—with the Peerless line the most complete in all its history and as complete as any line in the industry, this franchise is in a class by itself as a profitable business-builder for live dealers.

There are still some excellent localities open to dealers able to handle a big proposition and handle it well. Wire, write or phone for details of the Peerless franchise.

PEERLESS MOTOR CAR CORPORATION, CLEVELAND, OHIO
Peerless has ALWAYS been a good car

Export Dept.: 615 Fisk Bldg., Broadway at 57th St., New York City • Cable Address: "Mawsonne, New York"
Manufacturers of the 90° V-type Eight-69, the Powerful Six-72 and the Remarkable Six-80

PEER



Three separate models—
Three separate price ranges—
Three separate chances for
business

The Peerless Six-80

Sport Phaeton	\$1395.00
Roadster	1495.00
5-Passenger 2-Door Sedan	1545.00
5-Passenger 4-Door Sedan	1595.00
5-Passenger 4-Door Sedan De Luxe	1795.00

The Peerless Six-72

5-Passenger Phaeton	\$1895.00
Sport Roadster	2195.00
5-Passenger Coupe	2295.00
5-Passenger Sedan	2395.00
7-Passenger Sedan	2595.00
7-Passenger Limousine	2695.00
5-Passenger Sedan De Luxe	2795.00
7-Passenger Sedan De Luxe	2995.00

The Peerless Eight-69

Roadster	\$2995.00
5-Passenger Sedan	3495.00
7-Passenger Sedan	3595.00
7-Passenger Berline Limousine	3795.00

All prices f. o. b. factory

LES S

FREE: Something to help you make greater profit selling tires. A real money making idea. Read details below. Find out about this . . . today.

How Much Money

can you make
... at double normal profit?

Here's a proposition that helps you to close sales and make profits just double the normal figure you now get! It's a sound, common-sense proposition—and it's NEW. Here are details:

By RAY H. PADDOCK

UNDER this new plan you make *double the normal figure you now get.*

You get a chance to actually demonstrate—to large bus and truck fleet accounts. Without obligation to them—or to yourself. *With no risk of any kind!*

And you get a policy that takes care of the credit problem . . . *if the prospect is right.* No need to worry about limited capital.

And a tire—built right

Finally, you get a tire built up to standards, in *size, weight, price.* The stuff is in it—the quality, the endurance is **BUILT-IN** not talked or written in!

It's a ten ply, first long staple cord fabric—full 1¼" staple.

By frictioning process with heavy

steel calenders, rubber is driven through the fabric—*completely impregnated.*

The 36x6 weighs 71 lbs. without flap or wrapper. Compare this in weight—in size, appearance and durability with any tire you've ever handled.

A price that's right

Through concentration on volume, low distribution cost, we are able to offer this really superior tire at a *strictly competitive price.*

Write me—*today.* Only one dealer in each town can work this proposition. You must act quickly — *right now!* At least find out about this unusual opportunity—how it will help you—to more sales, greater profit.

RAY H. PADDOCK



MURRAY RUBBER COMPANY, Trenton, N. J.



*It's safer to stop with
Johns-Manville Asbestos
Brake Lining*



Next page tells
you why



Stop their cars with Johns Manville Asbestos Brake Lining

Why:-

OVER fifty percent of all automobile accidents are due to defective brakes.

Think of the responsibility carried by the brakes you reline!

In a jam, all that the motorist can do is have faith in your work and in your choice of braking material.

The responsibility is divided between both of us.

We are trying to do our share by turning out the best braking material on the market.

N. B.

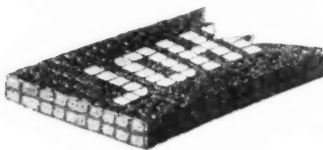
Have you seen the new price list on Johns-Manville Asbestos Woven Ground Clutch Facings? They're lower! Write us. We have a real proposition!



Worth remembering

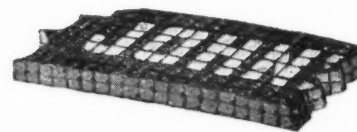
This Johns-Manville "Brake Service" sign is worth millions of dollars in motorists' good will because the Johns-Manville name has been advertised in hundreds of different magazines. Cash in on its value by putting it up on your shop.

Any way you look at it—



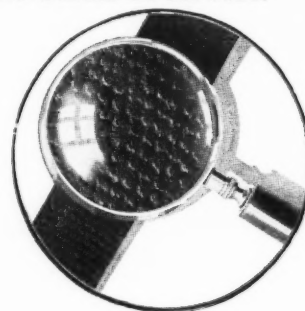
Endwise:

Notice how the impregnation penetrates right through each piece of Johns-Manville Brake Lining. This thorough impregnation with compound increases its naturally high resistance to the action of oil, grease, water and also greatly increases and preserves its frictional qualities.



Edgewise:

See how the thickness of Johns-Manville Brake Lining is maintained right out to the edge. This assures an even contact and maximum braking power from edge to edge on Johns-Manville Brake Lining. Note how tightly woven the edge is, too. This prevents its over-running the edges of the brake bands in service.



Lengthwise:

This shows how heavy and dense the weave is. Many years' experience have shown us that a hard dense piece of lining will give better service than soft flexible material. The unusual density of Johns-Manville Lining means unusual durability and service.

JOHNS-MANVILLE Inc., 292 Madison Avenue at 41st Street, New York City
Branches in all large cities For Canada: CANADIAN JOHNS-MANVILLE CO., Ltd., Toronto

JOHNS-MANVILLE

ASBESTOS BRAKE LINING
CLUTCH FACINGS, PACKINGS, Etc.



Air Brake
All in One
Battery P
Bearing C
Blowout
and Hi
Clutch an



Rie Nie

Trade Mark Reg.

FAN BELTS

There are no long periods of idle stock with Rie Nie Fan Belts. No hold-over from one year to another. Replacements are continuous—profits are steady.

Better fan belts than Rie Nie are not made. It's gratifying to know that each customer who leaves your store with one is a customer well satisfied. Rie Nie quality sees to that! These better-made belts are constructed scientifically of rubber saturated fabric, strong and durable—they are oil, heat and water-proof—ready for a long life of dependable service.

The investment in Rie Nie Fan Belts is moderate because fewer sizes are needed to service all cars. A liberal profit margin is allowed.

The summer touring season presents great sales possibilities. Suggest to your customers the idea of carrying a spare fan belt. It's good judgment and the cost is conducive. It will double your fan belt sales. If your jobber can't supply you, write us direct.

DURKEE-ATWOOD Co.
MINNEAPOLIS, MINN. U.S.A.

Manufacturers since 1910 of quality automotive products that **SELL**.
RIE NIE AUTOMOTIVE PRODUCTS

Air Brakes
All in One Dressing
Battery Paint
Bearing Glue
Blowout Patches for Balloon
and High Pressure Tires
Clutch and Brake Compound

Cowl Ventilator Gaskets
Enamel (Air Drying)
Enamel (Rub On)
Fan Belts
Friction Tape
Gasket Cement
Gasket Shellac

Graphite (Flake and Powdered)
Leather Dressing
Lucky Star Casing Patch
Metal and Nickel Polish
Patches (Repair Kits)
Pedal Pans

Polish (Auto Body)
Radiator Cement
Red Tip Blowout Patch
Radiator Hose
Rubber Cement (Cold Patching)
Rim Paint

Rubber Filler and Cement
Rubber Splicing Compound
Spring Lubricant
Tire Mica
Tire Paint
Tire Tale
Valve Grinding Compound
Varnish (Clear Auto)

Here's Genuine at startlingly low prices

HEXDEES

FOR SPRING CONTROL

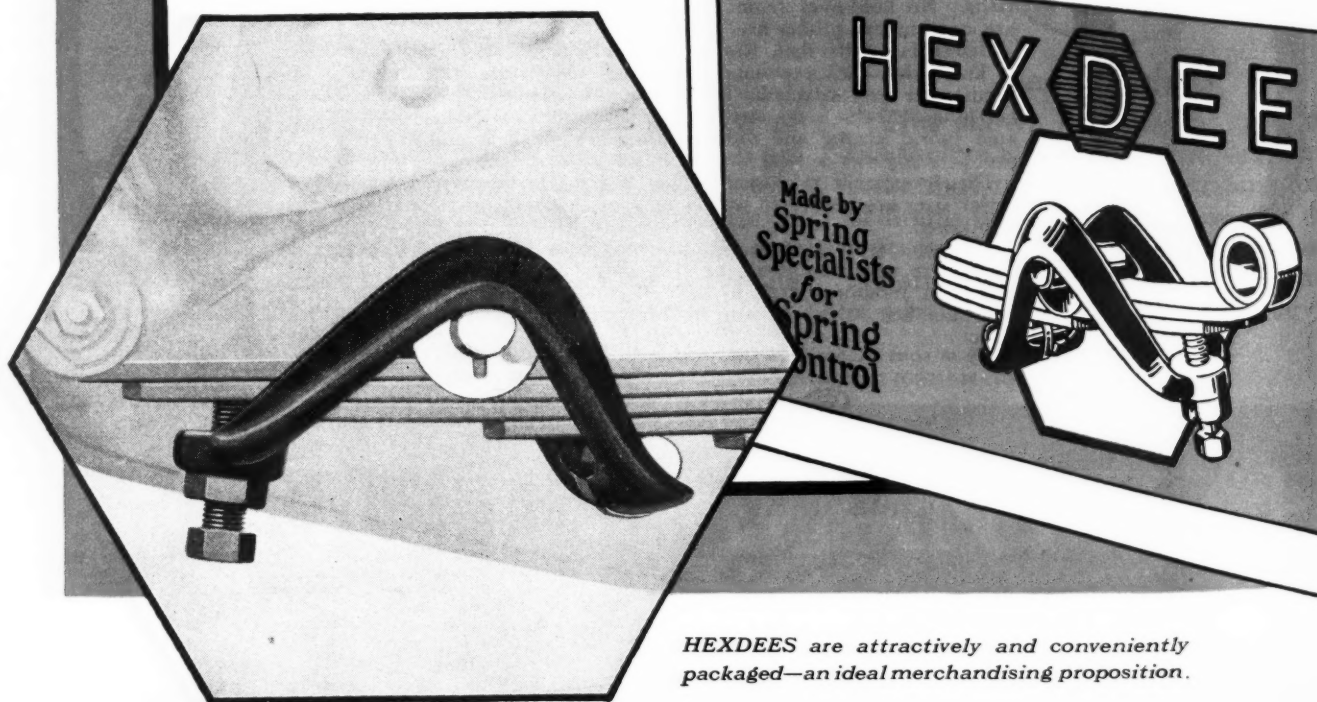
Developed by Spring Engineers

After years of experience in spring design and spring construction, Detroit Spring Engineers have developed Hexdees—wholly new devices for the scientific control of spring action—the *one sure* method of eliminating the ups and downs of motoring and smoothing out the road.

What Hexdees Are—simple devices, easily attached to the ends of the springs—consisting of a forging, two rollers, and a set-screw. They become an integral part of the springs.

What Hexdees Do—they control BOTH the down-thrust and the rebound without impairing spring action. They gently absorb the jars through interleaf friction. Instead of tying the axle to the car body, they control spring action within the springs themselves.

They Prevent Balloon Galloping—They counteract the rhythmic vibration known as "galloping," which is intensified by balloon tires. They solve the balloon tire problem.



HEXDEES are attractively and conveniently packaged—an ideal merchandising proposition.

Riding Comfort

\$8⁷⁵

for Fords

\$14²⁵ to \$17⁵⁰

for other Cars

Offer Your Motorists *Double Value at Half Cost* and You'll Get Volume Sales and Profits

At \$8.75 to \$17.50, the cost of a set of Hexdees is a mere fraction of the price of most ordinary shock absorbers. Yet Hexdees at money-saving prices give *double* value because they do *twice* the work.

Offer your motorists *double value at half cost* and you will sell Hexdees to many of them in a short time. You will get volume sales and volume profits.

Now Owners of Medium and Low Price Cars Can Afford the Comfort of Expensive Cars

Most of the world's costliest cars have expensive shock absorbing devices as standard equipment. The world's foremost engineers know that chassis springs must be *controlled*.

Eighty per cent of the motorists in your territory own cars in the low and moderate price class. Now, for the first time, they can assure themselves extra riding comfort. They will buy Hexdees.

Install Them in 30 Minutes, Then Forget Them

To install Hexdees, simply slip forging over spring, insert rollers and tighten set screw a recommended number of turns. No holes to drill. No special fittings necessary.

Once permanently adjusted, Hexdees require no further attention. Dust and

dirt cannot interfere with their operation. They need no lubrication. There is nothing to wear out.

Hexdees are guaranteed by the world's largest chassis spring manufacturer to give a satisfactory performance.

DETROIT STEEL PRODUCTS COMPANY
2286 East Grand Boulevard
Detroit, Mich.

SEND FOR THIS 30-DAY TRIAL SET

Fill in coupon below. It will bring you a trial set of Hexdees. Use them for 30 days. If for any reason you are not entirely satisfied with them, return them and your money will be refunded.

DETROIT STEEL PRODUCTS COMPANY
2286 East Grand Boulevard, Detroit, Mich.

Please send me C. O. D.—at regular dealer discounts.....sets of HEXDEES for demonstration on my.....car, model.....year.....

Name.....

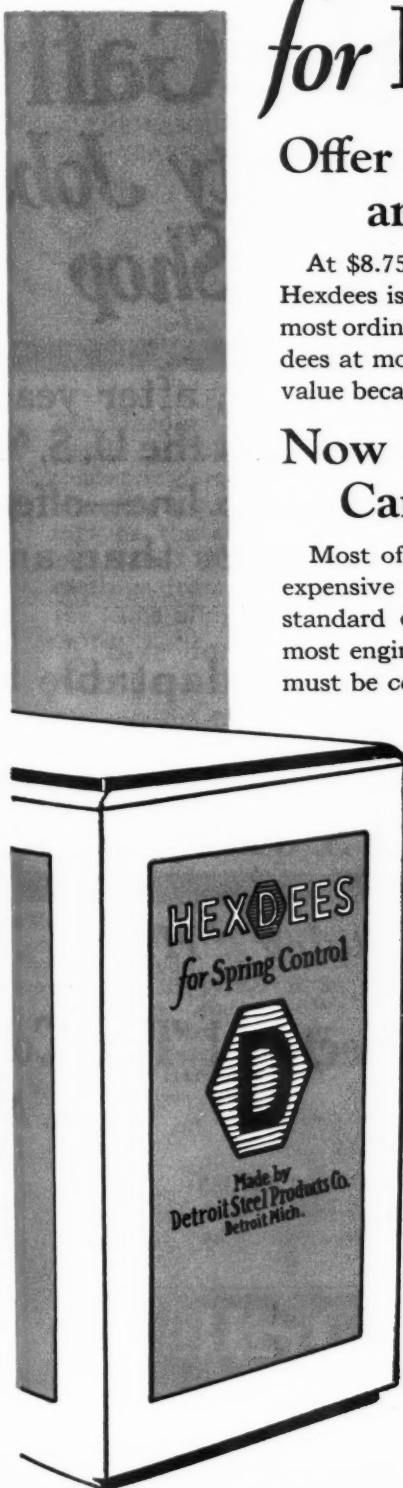
Address.....

I am a ☐ Car Distributor handling.....cars

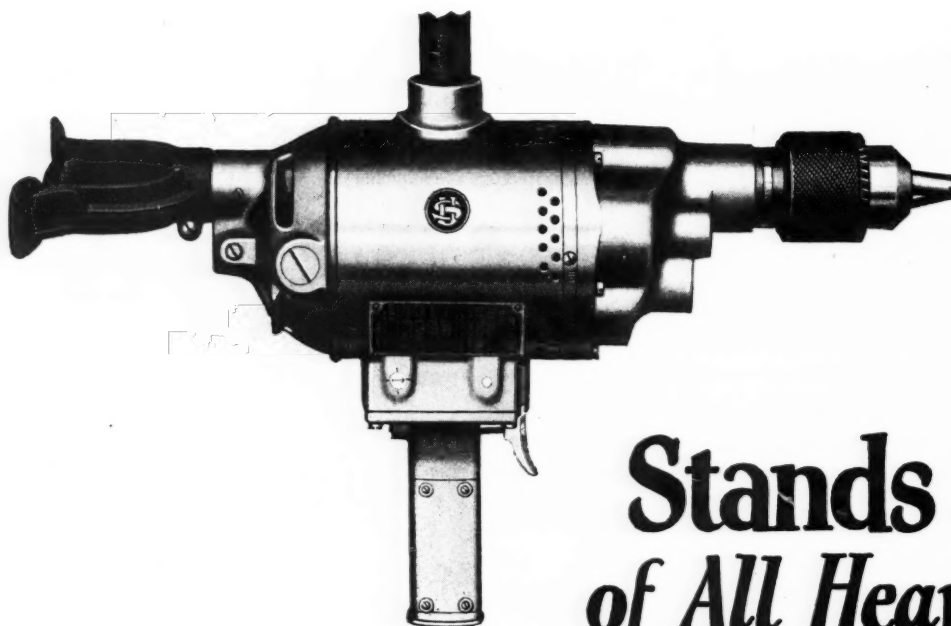
☐ Car Dealer handling.....cars

☐ Repair Garage Owner

☐ Service Station Owner



U. S. $\frac{5}{8}$ " Drill with Universal Motor for Alternating or Direct Current Circuits



Stands the Gaff of All Heavy Duty Jobs Around Your Shop

Mechanics the world over, after years of experience, will tell you that the U. S. $\frac{5}{8}$ " Drill—typical of the entire U. S. line—offers you more desirable features than any other.

This drill is especially adaptable to heavy duty and cylinder honing work in the automotive maintenance shop. Before you buy, investigate U. S. quality.



Write for Catalog "H"

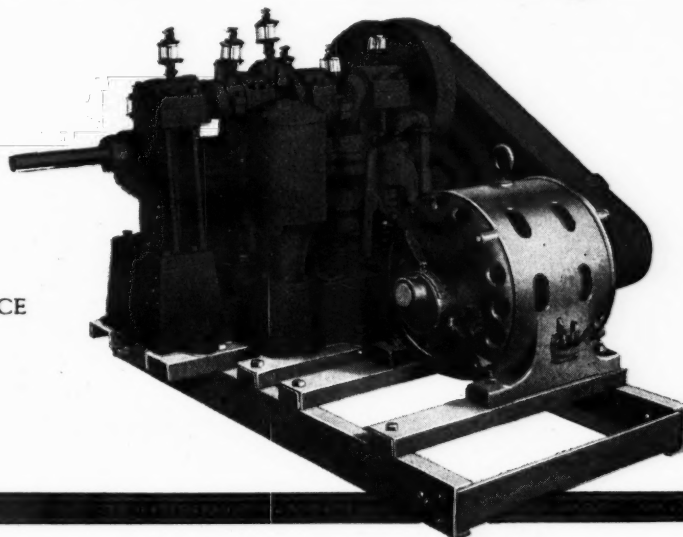
The United States Electrical Tool Co.
Cincinnati, Ohio - - - U. S. A.

EXPORT SALES REPRESENTATIVES
Westinghouse Electric International Company
150 Broadway - - New York City



Oldest Builders of Electric Drills and Grinders in the World

BUILT ON THE AUTOMOBILE PRINCIPLE



THE RESULT OF
26 YEARS' EXPERIENCE

STANDS THE
STRAIN OF
HEAVY DUTY,
DAY AFTER
DAY, YEAR
AFTER YEAR

The Hardie Car Washer is built on the Automobile principle—three cylinders in a row—connecting rods on a crankshaft—pistons or plungers on the connecting rods—heavy bearings on the crankshaft, etc. The castings are 14% steel. Many car manufacturers have their castings from the same pot. The crankshaft is the same alloy as that used in automobile con-

struction—drop forged. Everything is high grade—built for quality—not price.

Thus you get in a Hardie Car Washer a profit maker that will LAST. It will pay for itself in 60 days and then be able to withstand the increased strain that will result from increased business that it always brings. Bear that in mind in buying a car washer.

A Size for Every
Garage — 1-Car to
8-Car

The popular size is the two gun, but get a bigger one if you can, for your washer business is sure to grow beyond all expectations.

HIGH PRESSURE
HARDIE
CAR WASHERS
DEPENDABLE

THE HARDIE
MFG. CO.

HUDSON, MICH.
Portland, Oregon
Petrolia, Ontario, Canada
Los Angeles, Cal.
1780 Broadway, New York.

Means Repeat Business
Miller-Judd Co., NASH
DISTRIBUTORS for So.
Michigan, state — "We
have doubled our wash
rack business since we in-
stalled a Hardie Washer."

FOR SALE BY
LEADING AUTOMOTIVE
JOBBER EVERYWHERE

Write our Dept. D-6 for
literature and prices

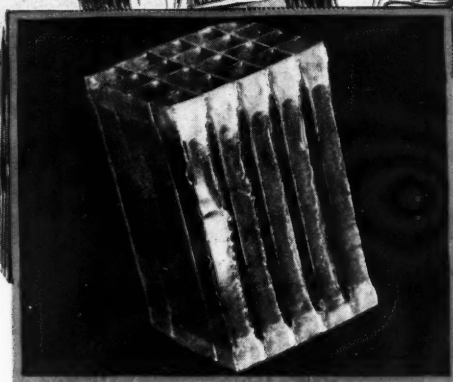


A 300-POUND STREAM FOR
CLEANING THE CHASSIS
QUICKLY AND THOROUGHLY

A FINE MIST
FOR CLEANING THE
BODY WITHOUT INJURY



9 Cooling out of Choked



RUST

*The Chief Cause of
Overheating—
Power Losses—
Excess Carbon—
Leaks in Radiator;
Water Pump and
Hose Connections—
Wasteful Driving—*

*Eliminated in
20 Minutes!*

*Four Times
a Year*

NO RAD

CARS that should give 20 miles to a gallon only delivering 16! Carbon forming all too rapidly. On hills, where power is needed most, power lags. . . .

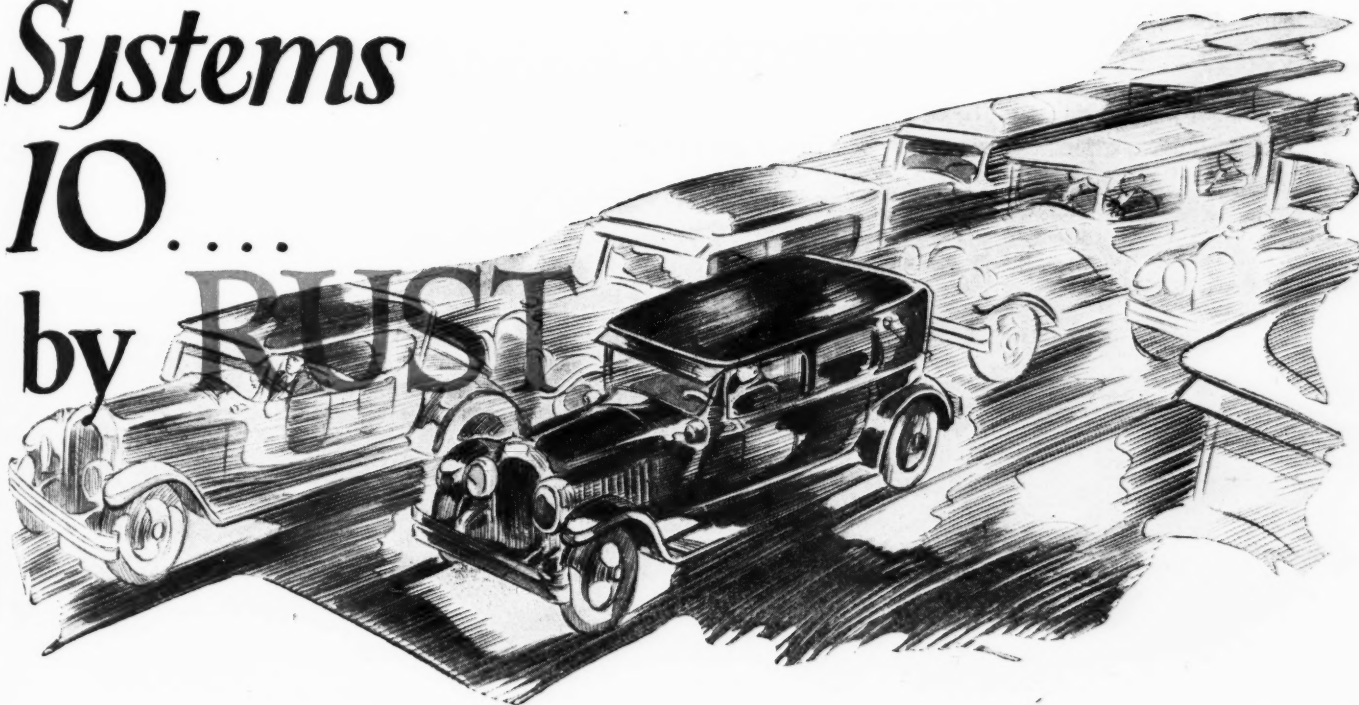
Engineers agree that today only one car in ten operates at full efficiency. And until now, the chief cause has been unsuspected.

The New Discovery

It has been found that in 9 cars out of 10 cooling systems are rust-clogged—*Choked!* Water jackets will rust . . . And this rust circulates until it reaches the narrow radiator water passages. Here it lodges so that water just seeps by. Drivers seldom notice until it is too late.

Unknown to them, their radiators may be stuffed with rust and grease. Water is only partially cooled—then shot back through the jackets! Its heat absorbing capacity is meager. It brings no relief to the scorching cylinder walls. Power losses, excess carbon, leaks in radiator, water pump and hose connections take their toll.

Systems 10.... by RUST



New Engine Performance

Now there is a way to prevent all this. Through a remarkable new preparation, cooling systems can be kept clear. *No Red Rust* circulates through the cooling channels, ferrets out rust and grease, eliminates them through the overflow pipe. It brings engines up to full operation efficiency. And radiator leaks are prevented—rust does not get a chance to eat through the cores.

Simply pour *No Red Rust* in the radiator. . . . Allow the engine to run for 20 minutes. Then watch the rust, grease and dirt eliminated through the overflow pipe. One treatment of *No Rad Rust* keeps the cooling water clean and clear for three months.

Here's Spark Plug Turnover

No Rad Rust—Four times a year! Thousands of motorists have the habit—millions are getting it. *This is spark plug turnover.* With the support of unusually successful display cabinets and other helps, furnished free, sales multiply. If your jobber cannot supply you, write direct today. *No Rad Rust Corporation, 413 Water St., Lancaster, Pa.*



RUST



Here is a Real Heavy-Duty Interchangeable Socket Wrench Set

Trucks and Buses Need Husky Tools!

HARD continuous service over all kinds of roads makes tight nuts necessary—you can't tighten big nuts with flimsy wrenches. Use these husky interchangeable sockets to do the job right and do it conveniently.

Set No. 500 consists of

Heavy Duty Sockets—from $1\frac{1}{4}$ " to $1\frac{3}{4}$ " complete with Offset Adapter, Tee Handle Shank, Cross Bar Handle, complete in *all-steel box*.

Box Size, $20\frac{1}{2}$ " x 4" x $3\frac{1}{4}$ ".

Weight, complete, 21 lbs. 8 oz.

Additional Heavy Duty Sockets, sizes not included in set, can be furnished if desired.

The Walden-Worcester catalog giving complete information on No. 500 Interchangeable Set, Walden-Worcester Offset Heavy Duty Wrenches, and containing the Walden-Worcester size chart is sent free. Write for a copy now.



WALDEN-WORCESTER

The original, and largest exclusive manufacturers of All Steel Socket Wrenches, - in the World
475 SHREWSBURY ST., WORCESTER, MASS., U. S. A.



GATES VULCO BELTS

"The Standardized Fan Belt"

60 to 80 strong endless cords run clear around every Gates Vulco V-Belt—the same cords and the same construction as a cord tire. No wonder the Gates Vulco is delivering the service and satisfaction that build good will for you.

Made by the World's Largest Manufacturers of Fan Belts

STEWART-WARNER



*Announces
Improved
Speedometer
for Fords*
Now \$10



Q NOW—a COMPENSATED Speedometer for the Ford—like the other Stewart-Warner Speedometers on millions of higher priced cars—ACCURATE in all varying degrees of heat and cold. COMPENSATION is as absolutely essential in a speedometer as in a watch. No other speedometer for Fords has it!

Q SECOND—IMPROVED by the ELIMINATION of the trip odometer. SIMPLIFIED, therefore more efficient. The trip figures are a relic. In the very few instances where the individual trip mileage is desired one can readily find it in the total mileage. No one ever sets the trip any more. Its USE IS OBSOLETE! In the Improved Speedometer for Fords there are only TWO DIALS to look at—AND they tell ALL!

Q THIRD—ANOTHER EXCLUSIVE FEATURE—the LUBRICATION DIAL—every 500 miles a red dial shows WHEN oil should be changed. An exclusive, patented feature—NO OTHER speedometer can have it.

Car owners want a speedometer that is always accurate—a speedometer that is not complicated by unnecessary details—AND—the colored dial lubrication feature—an extra value that adds nothing to the price they pay. ALL in ALL—the greatest speedometer value ever presented.

See the complete story of the New Speedometer in the Stewart-Warner Publication, "The News Meter." If you are not getting it write us.

STEWART-WARNER SPEEDOMETER COR'N, 1826 Diversey Pkwy., Chicago, U. S. A.

Compensated/ for ACCURACY!



No speedometer can be accurate unless it is compensated. Your fine watch is compensated, otherwise it would not keep accurate time in varying degrees of HEAT and COLD. And a speedometer which is not compensated may easily vary 5 miles or more per hour in different degrees of temperature. The difference may mean arrest and fine for the Ford owner who has a speedometer having no compensator. Stewart-Warner Speedometer has it—EXCLUSIVELY.

Stewart-Warner Products

Shock Absorbers - Bumpers
Rear Fender Guards
Spotlights - Electric Horns
Rear Vision Mirrors
Electric Windshield Cleaners
Speedometers - Heaters
Vacuum Tanks

— AND —

Stewart-Warner Matched-Unit Radio

TWELVE MILLION PEOPLE ARE TODAY USING STEWART-WARNER PRODUCTS

Customers Can't Resist It!



★ Shows Operation of Oil-less Timer

Customer simply turns the knob to operate this self-centering, oil-less, water-proof timer (which utilizes the same "Wipe-and-Break" principle as the Milwaukee Timing System).

You know customers can't resist a working display.

It's fascinating to turn the handle and watch the contact points of the Milwaukee Oil-less Timer, on this striking steel display, make—wipe—break; make—wipe—break. Turning the handle will be responsible for many of your Milwaukee Timer sales after you've placed the display on your counter.

The display shows—in full size and actual colors—the complete Milwaukee line. It holds a Milwaukee Oil-less from stock—holds it firmly and safely.

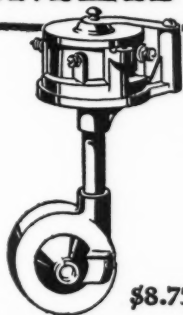
You get this Timer Salesman free with your first order for 25 Milwaukee Timers—Systems, Oil-less, or Rollers in any combination you specify, providing all three types are included.

Tell your Jobber's salesman
which assortment you want.

MILWAUKEE MOTOR PRODUCTS, INC.
MILWAUKEE, U. S. A.

MILWAUKEE

TIMER HEADQUARTERS~since 1905



Milwaukee Timing System

Contact action shoots a flaming *spray of sparks* into the cylinders. Each coil builds up its highest voltage and produces hottest possible sparks. No. 400, for 1926 Cars and Trucks—\$8.75. No. 500, for all Fordsons—\$8.75. No. 300, for 1925 and earlier Fords—\$10.00



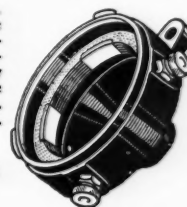
The New Milwaukee Oil-less Timer

This timer operates on the same principle as the Milwaukee Timing System. Self-centering—not affected by wobbly camshaft. No oiling, cleaning, or attention. Operates perfectly throughout its long life.



The Bakelite Case Milwaukee Roller Timer

Dependable roller type. Short-proof case. Bronze brush assembly—precision-gauged. Dependability established by many years of unfailing service in all parts of the world. Millions sold.



\$2.00



Drawn from life at
one of the General
Motors foundries

GENERAL



From foundry to finished car

PRODUCTS OF GENERAL MOTORS

*"A car for every purse
and purpose"*

CHEVROLET
PONTIAC
OLDSMOBILE
OAKLAND
BUICK
CADILLAC
GMC TRUCKS
YELLOW CABS,
BUSES AND TRUCKS

Fisher Bodies • Delco and Remy
Electrical Equipment • Harrison
Radiators • Jacox Steering Gears
AC Spark Plugs—AC Speedome-
ters • New Departure Ball Bearings
Jaxon Rims • Brown-Lipe-Chapin
Differentials and Bevel Drive Gears
Hvatt Roller Bearings • Inland
Steering Wheels • Klaxon Horns.

Delco-Light Electric Plants
Frigidaire Electric Refrigerators

General Motors cars and trucks,
Delco-Light electric plants and
Frigidaire electric refrigerators
may be purchased on the GMAC
Time Payment Plan.

The closed cars have Fisher
Bodies, also a "Product of General
Motors."

THE *size* of General Motors is
of real interest to you.

Your natural question is:
"Does this size mean service?
Does it make possible a better
car for me at a lower cost?"

It does.

For example, the fact that
General Motors uses as much
as 867,982 tons of steel in one
year means that it can purchase
the very best grades of steel at
the most favorable prices.

And by controlling its own
foundries, its parts and acces-

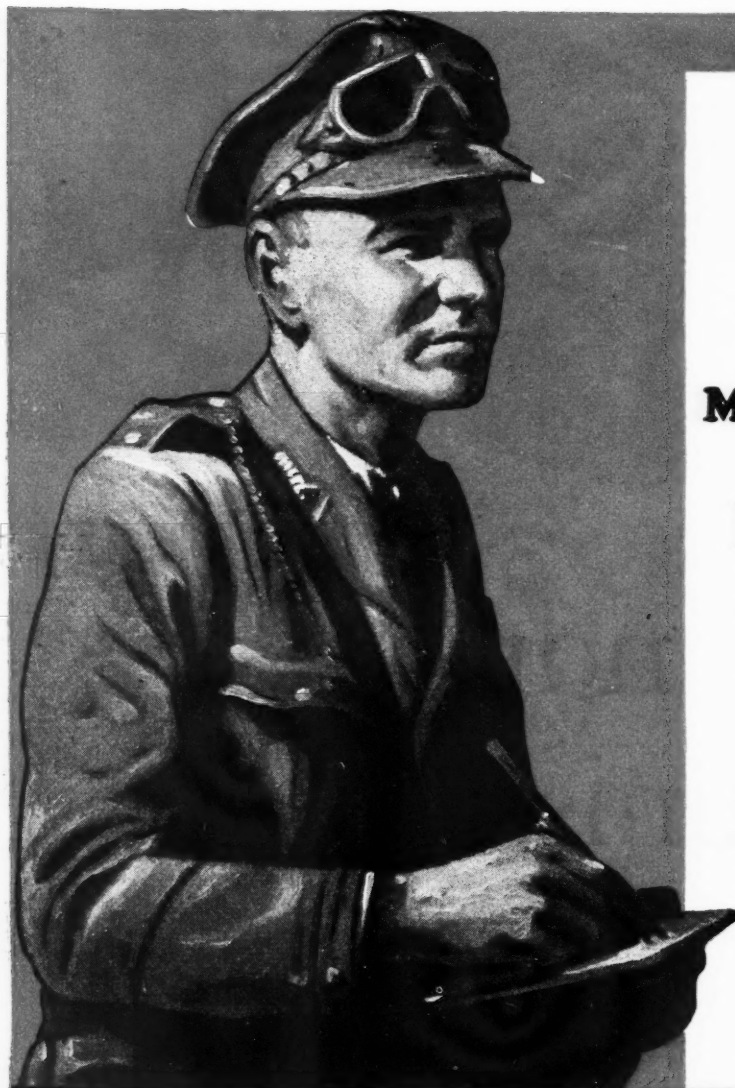
sory companies and the Fisher
Body Company, it can secure
and pass on to you every ad-
vantage of volume production.

From foundry to finished
car *quality* is the first law of
General Motors.

Whether you select a Chev-
rolet, a Pontiac, an Oldsmobile,
an Oakland, a Buick, a Cadillac,
a GMC Truck—or any other
General Motors product—you
are buying General Motors
quality and getting extra value
for your money.

© G. M. C., 1926

MOTORS



This orange and black sign, displayed outside your shop, will help build business for you, because it is familiar to the 25,000,000 readers of the leading magazines in which Multibestos advertising appears this year.

Multibestos Dealers' Biggest Year

IN 1925, more repair shops, service stations, garages and equipment dealers than ever before learned, through handling Multibestos, of the excellent profit there is in going after brake relining jobs. For Multibestos sales were greater than in any previous year of the company's existence.

The average car owner rarely knows the real condition of his brakes. Whereas you can tell almost at a glance. And whenever you install Multibestos, you are sure of a satisfied customer—because of the perfect braking qualities and the long wear Multibestos gives. And you are sure, too, of substantial profit.

Write us for the Multibestos Profit Plan for 1926

MULTIBESTOS COMPANY
Dept. MA6, Walpole, Mass., U. S. A.
Branches: New York Chicago Detroit Nashville

MULTIBESTOS

REG. U. S. PAT. OFF.

BRAKE LINING

**The Lining Most Car Makers Specify
ALSO**

MULTIBESTOS Taxitrux Brake Lining

MULTIBESTOS Busduty Brake Lining

MULTIBESTOS

"229" Transmission Lining for Ford Cars

MULTIBESTOS

Special Transmission Lining for Ford Cars

MULTIBESTOS

No-Wire Transmission Lining for Ford Cars

MULTIBESTOS

Norfolk Transmission Lining for Ford Cars

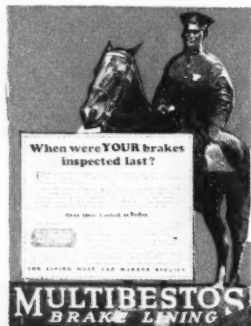
MULTIBESTOS

Fibre Transmission Lining for Ford Trucks

MULTIBESTOS Quick Change Bands for Ford Cars and Trucks

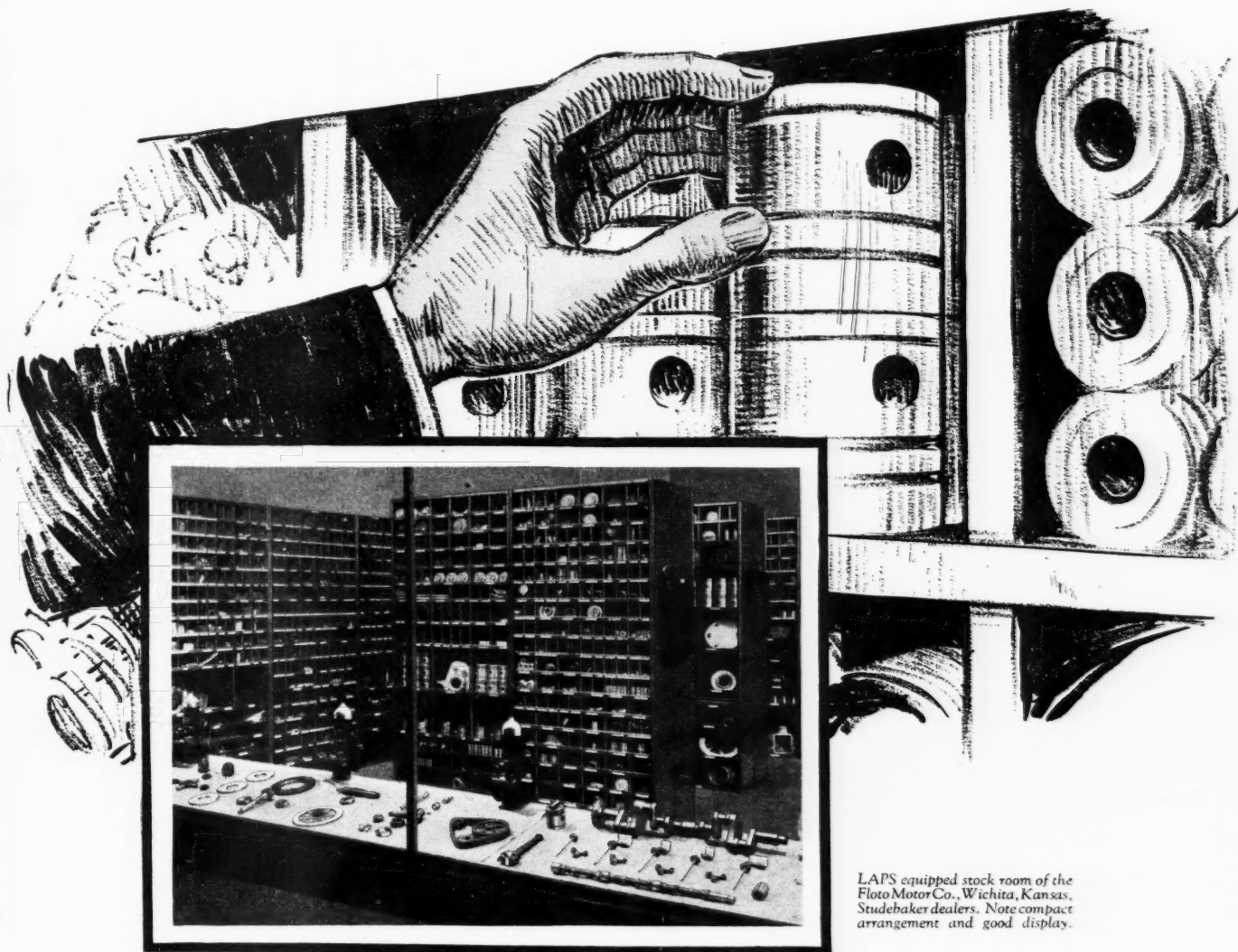
MULTIBESTOS Brake Relining Machines

MULTIBESTOS Clutch Linings



Whenever you look at a Traffic Cop, think of Multibestos. This is one of the Multibestos pages in color appearing in consumer magazines.





LAPS equipped stock room of the Floto Motor Co., Wichita, Kansas, Studebaker dealers. Note compact arrangement and good display.

Parts at your finger-tips

IN the parts department equipped with a Lupton Auto Parts Storage System, quick service and fast sales are the rule. All parts are in plain sight and are virtually at the finger-tips of the man who waits on the trade.

The result of this convenient arrangement and display is that parts and car sales are increased, customers are more quickly served, and overhead expense is cut by saving time. Moreover, the compact, visible storage of Lupton Systems keeps the parts-man familiar with his

stock. It reminds him to sell the slow-moving items, and re-order on the fast-selling numbers, and thus insures a well balanced stock and an easier part-man's job—with a smaller investment.

You stock parts—so why not make money on them with a Lupton Parts System, as 10,000 other dealers are doing? Ford, Chevrolet, Dodge, Hudson, Overland—no matter what car you sell, we have a Lupton System for its replacement parts. Write for further information and prices.



Spring Rack: Keeps springs, bars, shafts, etc., in order. Price only \$20, F.O.B. warehouses, Chicago, Cleveland or Philadelphia

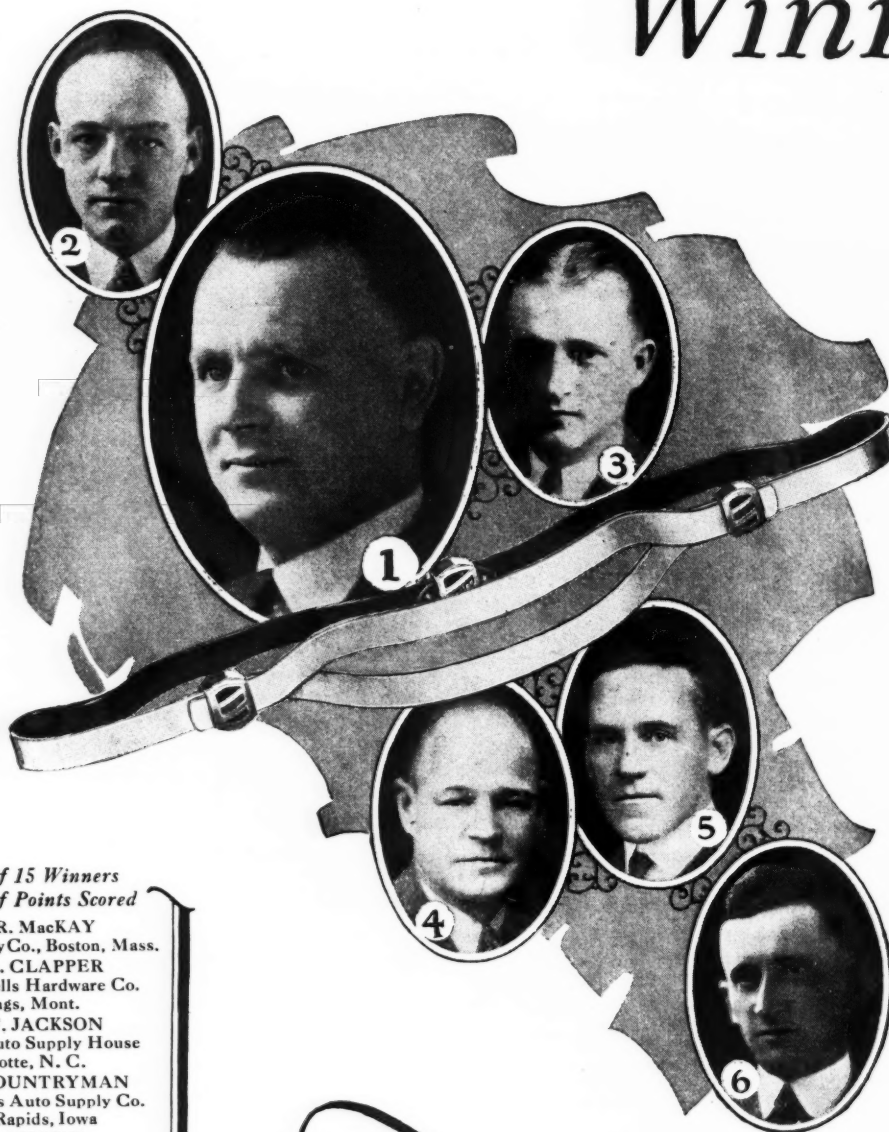


Tool Unit: Ideal for tools in shop or in Parts Department. Inclined bins show every item. Price only \$35.00

DAVID LUPTON'S SONS CO.
SALES OFFICE: 2631 WOODWARD AVENUE, DETROIT
SOLE MANUFACTURER OF LUPTON AUTO PARTS STORAGE SYSTEMS

LUPTON AUTO-PARTS STORAGE

Biflex Winners



Names of 15 Winners in Order of Points Scored

- 1—D. R. MacKAY
Linscott Supply Co., Boston, Mass.
- 2—A. A. CLAPPER
Marshall Wells Hardware Co.
Billings, Mont.
- 3—H. F. JACKSON
Carolinas Auto Supply House
Charlotte, N. C.
- 4—J. A. COUNTRYMAN
Cedar Rapids Auto Supply Co.
Cedar Rapids, Iowa
- 5—JIM HOWE
Linscott Auto Supply Co.
Boston, Mass.
- 6—J. M. PARKS
Carolinas Auto Supply House
Charlotte, N. C.
- 7—H. H. KRUDUP
Electric Appliance Co., Chicago
- 8—S. E. LOWE
Electric Appliance Co., Chicago
- 9—E. LINDSTROM
Automobile Supply Co., Chicago
- 10—J. S. CULBERTSON
Carolinas Auto Supply House
Charlotte, N. C.
- 11—V. I. CAPEN
Cedar Rapids Auto Supply Co.
Cedar Rapids, Iowa
- 12—R. L. WIESE
Cedar Rapids Auto Supply Co.
Cedar Rapids, Iowa
- 13—E. A. GLASNER
Electric Appliance Co., Chicago
- 14—H. C. SYLVESTER
Electric Appliance Co., Chicago
- 15—MAX PARIS
Sieg Co., Davenport, Iowa

THESE star salesmen, winners in the recent Biflex and Halladay distributors' salesmen's contest, piled up a tremendous volume of business and smashed all previous records for individual bumper sales. The efforts of these men and other Biflex and Halladay distributors' salesmen have been largely responsible for the enormous increase in business which is credited to Biflex this year.

*Biflex Bumpers and Rearguards
for all automobiles at all dealers*

THE BIFLEX CORPORATION, Waukegan, Illinois
Subsidiary: The Halladay Co. Decatur, Ill.

AUBURN

dealers will receive
\$ 25.000.000
for Auburn Automobiles this year. Get
your share of it. We
havethemostsatisfac-
tory dealer franchise.

8-88 Sedan \$1995; 8-88 Brougham \$1795; 8-88 Coupe \$1745; 8-88 Roadster \$1695; 8-88 Touring \$1695; 6-66 Sedan \$1695; 6-66 Brougham \$1495; 6-66 Coupe \$1445; 6-66 Roadster \$1395; 6-66 Touring \$1395; 4-44 Sedan \$1195; 4-44 Coupe \$1175; 4-44 Roadster \$1145; 4-44 Touring \$1145. Freight and tax extra.

AUBURN AUTOMOBILE COMPANY, AUBURN, INDIANA

Your best parts salesman

A hard-working garage proprietor is apt to think he has little time to go out and drum up parts business—although increased sale of parts is the real road to success in a service business.

He can, however, depend on certain well known parts to do a lot of selling for him.

Thompson Valves lead the procession in this respect, because their fine appearance and reputation help make the sale. Once in the car they advertise your service, because they have a more noticeable, immediate and lasting effect on engine performance than any other part.

So, again, we say, "Sell more and regrind less."

THOMPSON PRODUCTS, INC.

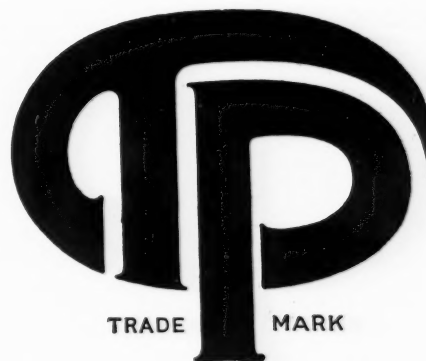
General Offices: Cleveland, Ohio, U. S. A.

Factories: CLEVELAND and DETROIT

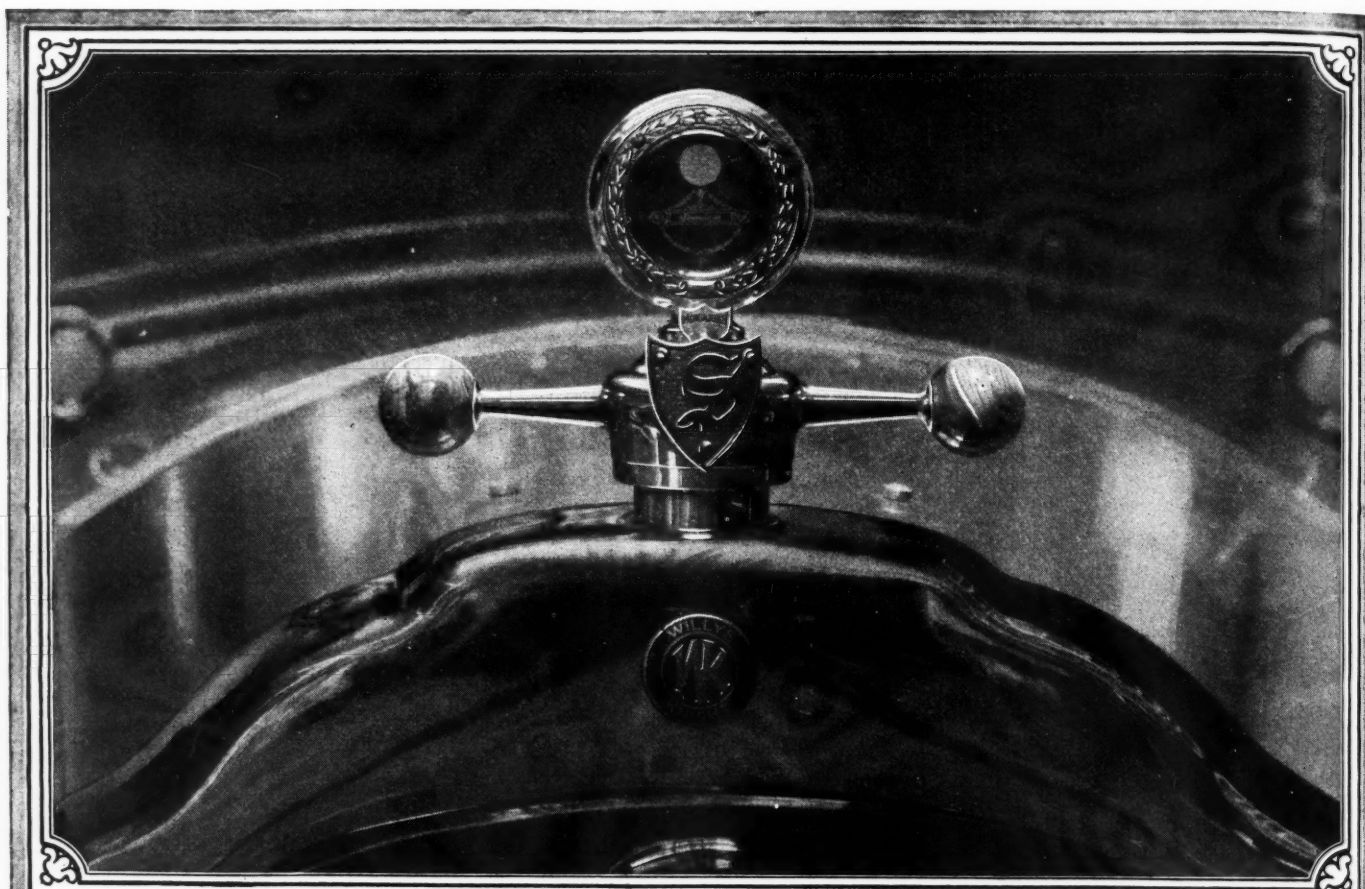


Thompson Silcrome Valves





Tell your customer *why*, and he'll want to buy a set of Thompson Valves instead of having old, worn-out ones reground. Our booklet, "Ten Tips to the Trade," tells *you* why. Write for it and sell more valves.



THE CROWN OF ROYALTY FOR EVERY CAR

THE universal preference for MONOGRAM Radiator Caps proves the effectiveness of MONOGRAM National Advertising and the soundness of The Kingsley-Miller Sales Policy.

These have won jobber and dealer support for a real quality product. The car owner has his choice of three distinct models—Royal Onyx Cap, Standard Bar Cap, Wing Cap—in either Junior or Senior size. The MONOGRAM line is a profitable one

because it does not tie up capital in a big assortment of sizes. MONOGRAM Caps are installed in a few seconds. Then, too, MONOGRAM prices are right—all quality caps—ranging in price from \$4.00 for the Junior Standard model to \$10 for the Senior Royal Onyx model. MONOGRAM Illuminated Gear Shift Ball, \$5.00. MONOGRAM Locking Gear Shift Ball, \$2.50. An assortment of bushings adapts these balls to all makes of cars.

Watch for MONOGRAM Caps on the cars you pass—write for our literature

THE KINGSLEY-MILLER COMPANY
600 W. JACKSON BLVD. CHICAGO, ILLINOIS

*See our advertisement in
this week's
Saturday Evening Post*



*This is advertisement No. 2
showing MONOGRAM CAPS
on well known cars.*

ANNOUNCING

The

Burroughs

Portable

Adding Machine

\$100

*Delivered in U.S.A.
Easy terms if desired*



for Automotive Dealers

Adds up to \$1,000,000.00
—Standard visible keyboard—Right hand control—Slightly larger than a letterhead—Easily carried from counter to office, desk to desk, or business to home. Backed by Burroughs nation-wide service.

In eight months, 22,326 Burroughs Portables have been sold. The 20,209 already delivered are giving such satisfaction that re-orders are coming in daily. For demonstration of this machine call the local Burroughs office or write to—

BURROUGHS ADDING MACHINE COMPANY
6316 SECOND BOULEVARD DETROIT, MICHIGAN

22,326 BURROUGHS PORTABLE ADDING MACHINES ALREADY SOLD

**"I'll
Take
One!"**



That's what this new and attractive 3-color display card is making thousands of Ford-owner customers say all over the country. It will prove a lively little salesman for the Pioneer Engine Support. Ask your jobber for one and then put it on the counter where it will be seen. Watch your Ford owner customers take the little folders, and read them. If they don't ask to see the Pioneer Engine Support at once, they'll come back later, ready to buy.

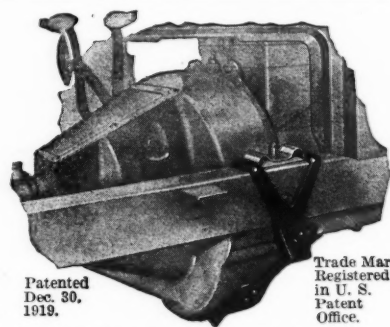
Every Ford owner likes his car: but he doesn't care for the engine vibration. Show him how he can get rid of the vibration by putting on a Pioneer Engine Support.

If you are not already on our dealer list, write for our attractive proposition.

The Brewer-Titchener Corporation
108 Port Watson St. Cortland, N. Y.

**Pioneer
Engine Support**

Trade Mark Reg. U. S. Pat. Office



Patented
Dec. 30,
1919.

Trade Mark
Registered
in U. S.
Patent
Office.

Note the new two-fingered brackets that take a firmer hold on the frame and keep the support absolutely rigid. Two fingers always grip better than one.

Here's what the Pioneer Engine Support Does

- tightens Ford Chassis
- eliminates Vibration
- prevents Broken Crankcase Arms
- sets Crankcase Arms Already Broken
- cuts Repair Bills
- reduces Oil Leakage
- keeps Nuts and Bolts from Loosening
- gives Smoother Running Engine
- increases Riding Comfort

Only \$3.00



The Brewer Titchener
Corporation
108 Port Watson St.
Cortland, N. Y.

Please send me further information about the Pioneer Engine Support.

Firm Name
Individual
Address

No motorist whispers words of praise as he tugs at a rusty rim

WHEN you see a motorist in the throes of tire-changing—tugging and wrenching in a blue haze—you know his car isn't on Budd-Michelin Wheels!

But it's a safe bet his next car *will* be. Changing a tire mounted on a Budd-Michelin Wheel requires less work and one hundred percent less wrath. There are no rim-clamps. No demountable rims.

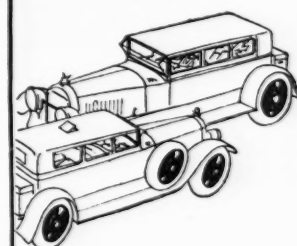
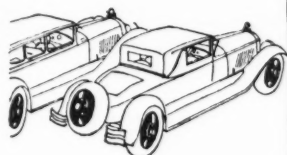
A few turns on the cap nuts at the hub and the wheel can be slipped off, the spare wheel mounted, the cap nuts tightened and the job is done. Done in four minutes.

No wonder motorists are saying, "goodbye, buggy wheels!"

B U D D

WHEEL COMPANY

Detroit

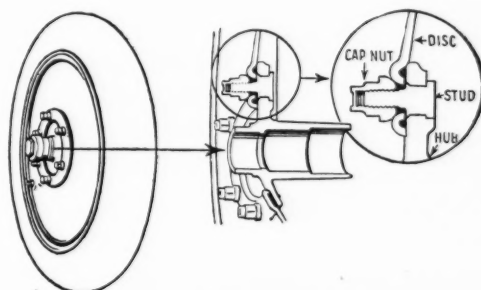


Why BUDD-MICHELIN WHEELS are seen but not heard

... There can be no noise between disc and rim because they are permanently joined—practically one piece.

... The hub cannot cause noises because it is a one-piece forging.

... The diagram shows how the mounting of the disc on the hub prevents any play or noise. The disc does not touch the studs—the cap nuts carry it.



Tightening the cap nuts brings disc and hub together with a tension like the compressing of a spring. Prevents any chance of noise here.

... The holes in the disc cannot be worn egg shape by the studs. The studs cannot be sheared off by the disc. The cap nuts cannot work loose because they are in effect self-locking.



This is one of the more than 300,000 Kawneer Store Fronts you will find on the leading business streets of the nation.

Kawneer

SOLID COPPER

STORE FRONTS

FILL EVERY DISPLAY NEED

Thousands of Kawneer Fronts are now increasing sales for motor car and accessory dealers in all parts of the country. Kawneer resilient grip glass setting permits the safe use of large plates that are needed to display automobiles properly. These large windows show the product up to the greatest possible advantage, and every dealer knows what an irresistible attraction a well displayed car has for the prospective buyer.

Attach the coupon to your letterhead and mail at once for free book of designs showing Kawneer fronts that are selling motor cars every day.

The
KAWNEER
Company

3724 No. Front St.
Niles, Mich.

Send suggestions for
motor sales display
windows.

Name _____
Address _____
City _____ State _____

FREE: SPECIAL PROPOSITION
to tire dealers. It's new!
Write for full details . . . today.



HERE'S the SECRET!

THE basic idea behind this success is quite simple. It's just this:

1. Concentration on one brand—one line.
2. Cash business only.
3. Simple but resultful local advertising.
4. Guaranteed quality—backed to the limit by us, as manufacturer.

The big point is . . . that *any* tire dealer, anywhere, can apply these same sound principles and duplicate these results! Beginning right now.

Check up on this . . . today

This is only one, of hundreds of enthusiastic letters in our files. They're from wide awake, successful tire dealers all over the country.

Men who've made good in a big way—as you can—beginning right now!

Send for our proposition—free to tire dealers. It's new! Something you've never had before.

It doesn't try to sell you a thing—except a sound, proven money-making idea!

You know tires—and tire-buyers. Check up on the new EMPIRE, against your own judgment. You'll find it right—in weight—in price—in solid, built-in quality.

Then write us. Just ask for our special sales proposition. You're dead sure to get at least one good, sound money-making idea!

EMPIRE TIRE & RUBBER CO.
Trenton, N. J.

How One Man Carries Complete Tire Stock On A Small Cash Investment!

Tire dealers—here's an interesting letter from one of you! It tells how the problem of stocking on small investment can be solved today . . . this simple new way!

1 1 1

Mt. Vernon, Ill.,
March 19, 1926

The Empire Tire & Rubber Corporation,
Trenton, New Jersey.

Gentlemen:

We note that you have received numerous testimonials from many of your good dealers, that you are using in some of your Class Journal advertising.

I would like to add to these testimonials that we have been handling Empire tires exclusively for the past four years and are today enjoying the largest volume and the most profitable business that we have ever heretofore experienced.

The fair treatment received from your factory has been such that we have continued to do business for four successive years with a smile.

We want to thank you for the cooperation extended and believe that your policy of extending an exclusive agency to one man in a town, giving him a tire second to none in quality, at a price, due to your saving in cost of distribution, that enables him to meet the keenest competition, is one that should be successful in every city.

Empire tires have given such excellent service that I do not hesitate to recommend them whole-heartedly to our best friends.

Wishing you every success for the coming season, we remain

Very truly yours,

SCHMITT AUTO SUPPLY

By:

W. A. Schmitt

WHAT KIND OF BUSHINGS ARE IN YOUR BUSINESS?

When you put a bushing into a man's car or motor you are putting that bushing into your business and it's going to do your business just as much good as it does the car.

Do you rebush springs, pistons, steering assembly and other important points with brass, iron, rolled sheet and cheap tubing, or are you building a better business with genuine sand cast phosphor bronze Bunting Bushings? There is a lot of difference.

Bunting Bushings are made for service replacements in all popular automotive vehicles. Jobbers everywhere have complete stocks. Packed in convenient boxes plainly marked.

THE BUNTING BRASS & BRONZE CO.
TOLEDO, OHIO

BRANCHES AND WAREHOUSES AT

NEW YORK 245 West 54th St. Columbus 7528	CHICAGO 2015 S. Michigan Ave. Calumet 6850-6851	PHILADELPHIA 1330 Arch St. Spruce 5296
SAN FRANCISCO 198 Second St. Douglas 6245	BOSTON 36 Oliver St. Main 8488	



BUNTING

PHOSPHOR BRONZE

BUSHING BEARINGS

PATENTED

BADGER

TIRE and TUBE REPAIR OUTFITS

A most complete and profitable line for the Automotive, Accessories and Repair trade.

Made by one of the largest companies in the Rubber industry, and quality guaranteed.

Every car owner a possible customer for one or more of these items.

Dealers supplied through the Wholesale trade.

For full information, write

THE BADGER RUBBER WORKS

MILWAUKEE, WISCONSIN



BADGER
Tire and Tube Repair Kit



BADGER
Tube Quick Repair Kit
Standard and Junior Sizes



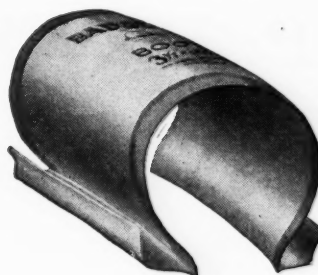
BADGER
All Cord—Gum Coated
Tire Plaster—4" and 6"
Counter Display



BADGER
Air-Drying
Solvent Repair Cement



BADGER
Tube Repair Kit
Shop Size



BADGER
Fabric Blowout Boot

Fred Duesenberg Says—

The real purpose of a super-charger is to break up the fuel better and increase efficiency of operation at low speeds rather than to increase volumetric efficiency at high speeds and loads.

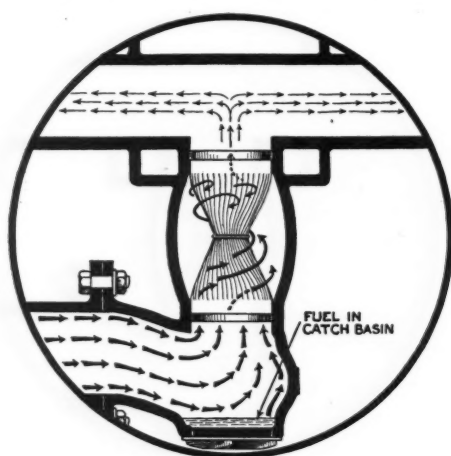
—Automotive Industries, January 28, 1926



THE "BAT" SUPER-CHARGER

Operates Every Time the Engine Breathes

A Suction Type Super-Charger



Showing by means of arrows how unevaporated fuel is mixed with air, reversed and thrown back into the center of stream by the "BAT" Super-charger.

The purpose of the super-charger on automobiles is to break up the fuel. The method need not necessarily involve power driving or a blower.

In the "BAT" Super-Charger there are no moving parts. The fuel does the moving—as shown by arrows in the accompanying illustration. Thus the "BAT" system becomes operative on the first turn of the engine, and functions continuously as long as the engine runs, regardless of speed.

It charges all cylinders evenly, with a perfect homogeneous mixture; it makes cold motors start; it prevents dilution; it eliminates back-fire; it operates successfully on new cars and rejuvenates old ones.

For passenger cars, trucks, tractors, marine engines, aviation engines, stationary engines, etc.—**prices ranging as low as \$7.50.**

P. H. WEBBER COMPANY

Racine Industrial Plant, Building No. 12

Racine



Wisconsin

Manufactured and sold under license of P. J. F. Batenburg, Racine, Wis.



More Profit for You by Selling CHROMINE PREVENTS FROZEN RADIATORS

CHROMINE, the super-non-freeze radiator solution, brings you an average sale of \$3.50, at a profit to you that is several times greater than you get from alcohol; and it makes satisfied customers, for Chromine is odorless and thus entirely eliminates one of the greatest objections to alcohol.

Standard Chromine solution prevents freezing at 15 to 25 degrees below zero, and for lower temperatures a special Chromine solution will be provided that will not freeze at 35 degrees below zero.

Place orders now with your jobber for later delivery and be ready to furnish Chromine to your customers before cold weather starts.

If you let it be known that your place of business is Chromine headquarters, you will begin to attract, from the beginning to the end of winter, all the desirable motor car owners in your territory.

A booklet telling all about Chromine and scores of testimonial letters from satisfied dealers and customers will be sent on request.

Chromine will not evaporate

Chromine

REG. TRADE MARK

RADIATOR
FREEZE-PROOF SOLUTION

PYRENE MANUFACTURING CO., Newark, N. J., Makers of **OFF'N'ON** Tire Chains



It Saves Repair Bills!

People don't like to be bounced around when riding for pleasure or business. It's uncomfortable — disagreeable — nerve wracking. The human frame protests at such treatment — vigorously.

Car owners have discovered that the violent recoil which puts inches between them and the seat is equally hard on the car's frame. Racks it—twists it—loosens bolts and nuts—saps its stamina. They're ripe for insurance against spring recoil.

Burd-Gilmans afford just the protection car owners want. They're the best kind of insurance because they prevent—make cures unnecessary. Demonstrate this point to your customers—they'll see it quickly—appreciate its value. Better yet, they'll adopt it.

Write for Literature, Prices, and Trade Discounts

BURD HIGH COMPRESSION RING COMPANY

Makers of the Famous Burd Piston Rings

ROCKFORD, ILLINOIS

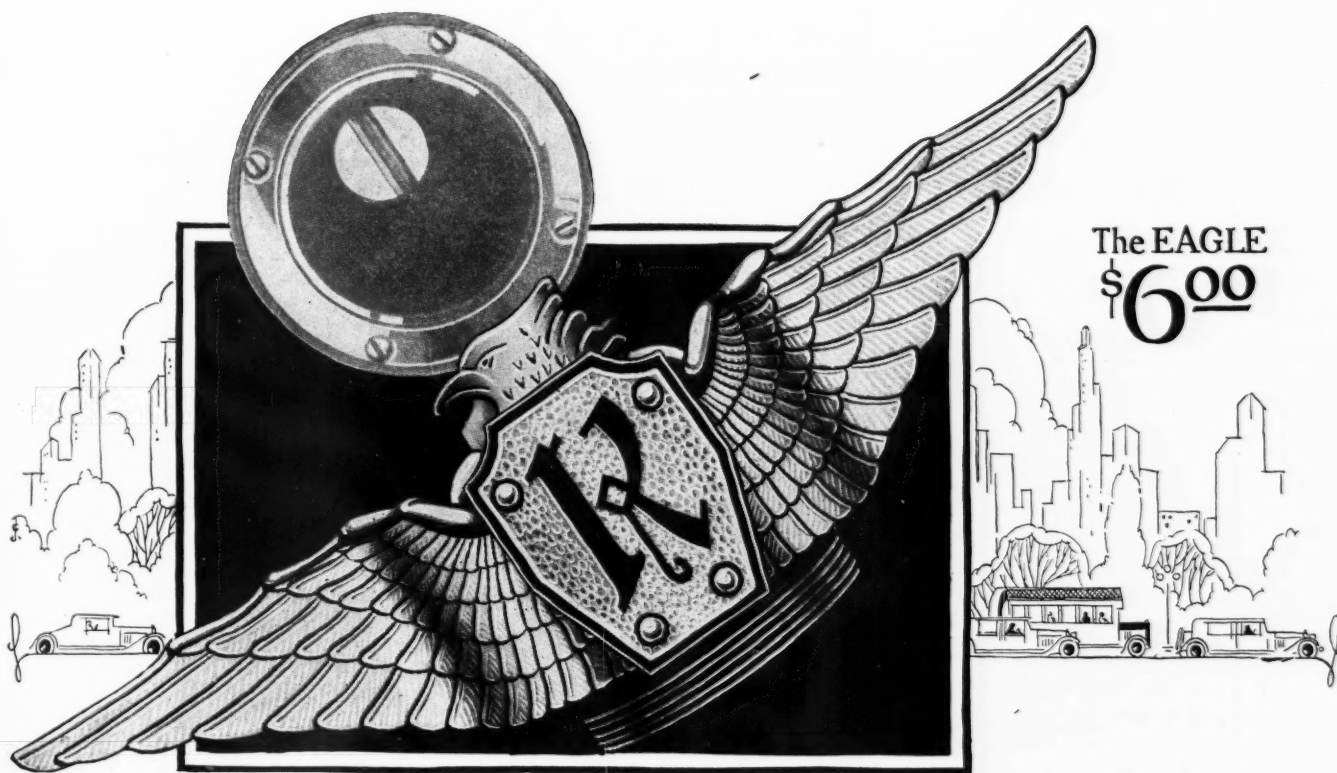
BURD GILMAN SHOCK ABSORBERS

THE ORIGINAL SNUBBING DEVICE
WITH THE STEEL CABLE



WHY BURD-GILMANS ARE BETTER:

1. Steel Cable will not break, stretch, kink, rust, or stick.
2. Steel Housing is weather-sealed. No water, ice, mud, dust nor grease can get into the working parts.
3. Simple screw driver adjustment adapts Burd-Gilmans to any tension desired for either balloon or high pressure tires.
4. Tension remains set. Will not work loose, requiring frequent adjustments.
5. Recoils from all depressions, large or small, continuous or at intervals, are instantly checked. No set spots where shock absorber will function and others where it will not. Spring control is constant.
6. No greasing nor oiling—ever.
7. Simple, trouble-proof construction. Very few moving parts.
8. Maximum riding comfort.
9. Easy to install.
10. No servicing required.
11. The best insurance against car depreciation and repair bills because vibration is reduced to a minimum.
12. Guaranteed.



The World's Greatest Buy

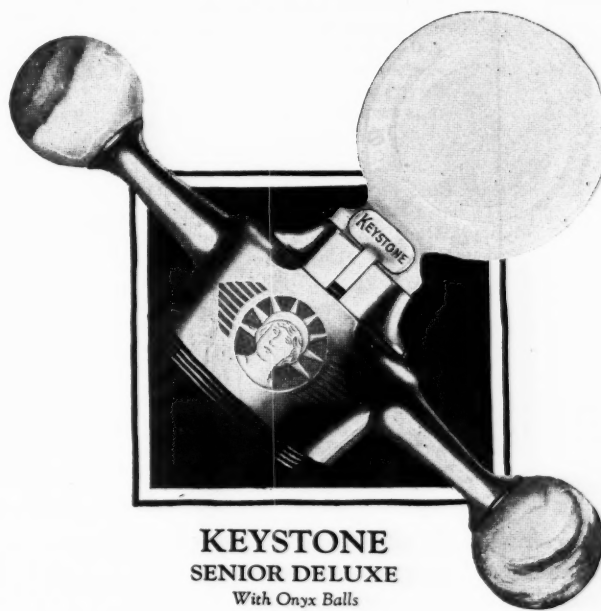
(With Apologies to HUDSON-ESSEX)

THE utmost in the three essentials of a radiator cap—*Design, Utility and Protection*—at a reasonable price, make a "Keystone" the "World's Greatest Buy" in self-locking radiator caps.

The ever increasing popularity of Keystone Caps indicates general approval of the attractive designs, convenient utilities and excellent mechanical features for protection against theft.

The beautiful and distinctive KEYSTONE Eagle and Eaglet Models, the popular KEYSTONE Senior and Junior Models (plain, bar and ball types), and the KEYSTONE Senior and Junior DeLuxe Models (with genuine Onyx balls) are all available in sizes to fit any car.

Ask your jobber about KEYSTONE Caps.



KEYSTONE
SENIOR DELUXE

With Onyx Balls

\$8.50

THE NORLIPP COMPANY
568 West Congress Street Chicago, Illinois



Your Jobber will supply
this display stand

KEYSTONE

SELF-LOCKING

RADIATOR CAPS

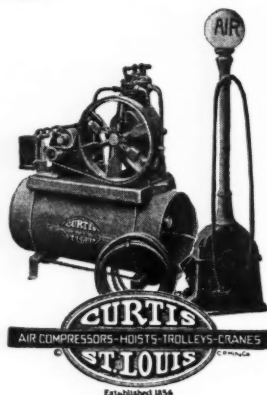
Reliability is a Necessity

What happens when your compressor fails? Your air inflation line becomes useless. Customers who drive in to your station or garage become irritated and go elsewhere when they find your air supply is unreliable. You lose business. Reliability is the first thing you should demand of your air compressor, and reliability is built into every Curtis Compressor. Send for information about the many Curtis styles and capacities. Let us suggest the one best suited to your needs.

Great Manufacturing Facilities

Curtis Compressors and Air Stands are built in the big 17½ acre Curtis plant. Seventy-two years of successful manufacturing experience and nearly 30 years of specialization on pneumatic machinery are reflected in each Curtis product. That is why it is better.

Curtis Style "V" Compressor and Curtis Air and Water Stand.



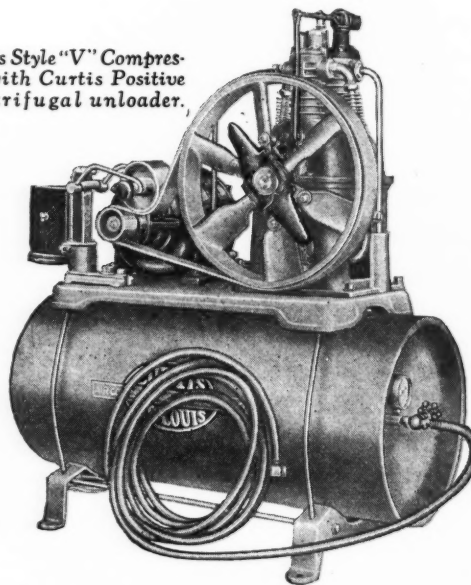
CURTIS Pneumatic Machinery Co.
1957 Kienlen Ave., ST. LOUIS, MO.
518-U Hudson Terminal, New York City.
Please send me full information about Curtis
Air Compressors.

Name.....City.....

Address.....State.....

☐ Send information about Air and Water Stands

Curtis Style "V" Compressor with Curtis Positive Centrifugal unloader.



Putting Nature to Work

Curtis Automatic Type Compressors are fitted with the Curtis Centrifugal Unloader, a distinctive Curtis feature. It is a positive-acting unloader because it uses only the forces of nature.

The Curtis Automatic Type Compressor cannot start against a load. The Unloader makes this impossible. As soon as the speed drops below a certain minimum, the Centrifugal Unloader holds the suction valve open until the motor has gained speed enough to again handle the load. This means no more trouble from burned out motors, fuses or belts.

Curtis Compressors, by reason of the controlled splash oiling system, are free from trouble with oil leakage. Your air supply is clean and dry all the time. Still, notwithstanding the superior design and unmatched performance of Curtis Compressors, they cost no more than many ordinary machines.

Send for full information today. Use the coupon below.

Curtis Pneumatic Machinery Co., 1957 Kienlen Ave., St. Louis, Mo.

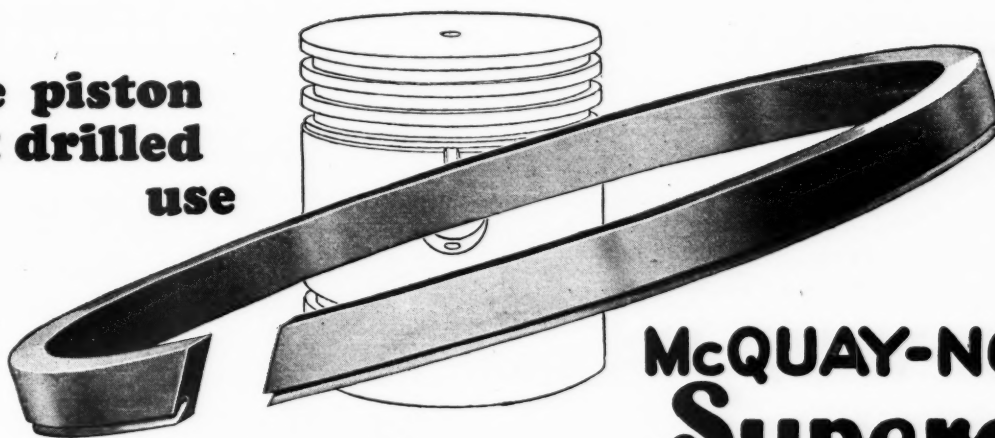
1854—Seventy-two Years—1926

CURTIS

COMPRESSORS-HOISTS-CRANES
AND AIRMIST CAR WASH SYSTEM

The Two McQuay-Norris Oil Rings Cover Every Oil Ring Need

**If the piston
is not drilled
use**

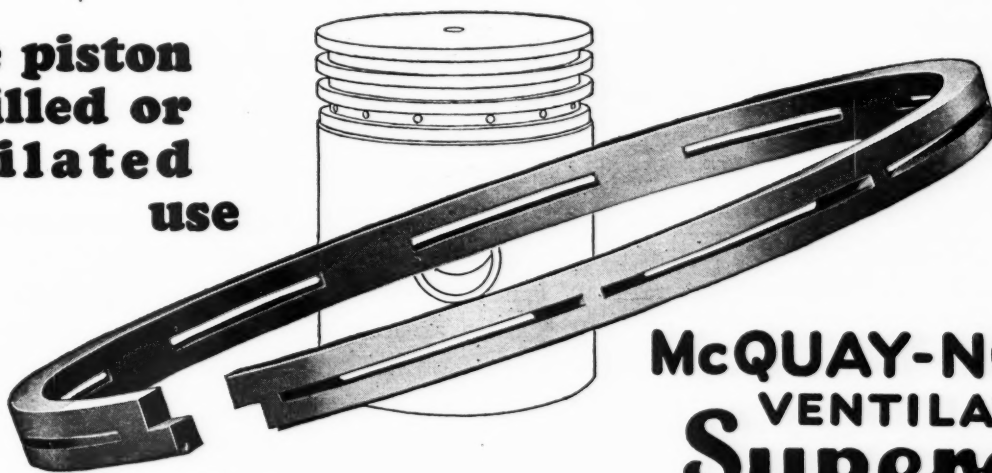


50¢ Each

McQUAY-NORRIS
Superoyl
REG. U.S. PAT. OFF.
RINGS

The McQuay-Norris ring which introduced the oil-scraping principle 7 years ago. Made in all sizes and over-sizes from McQuay-Norris electric iron.

**If the piston
is drilled or
ventilated
use**



50¢ Each

McQUAY-NORRIS
VENTILATED
Superoyl
REG. U.S. PAT. OFF.
RINGS

An oil ring combining the oil-scraping principle with ventilating slots and a step joint. Especially designed for use with ventilated or drilled pistons. Made in all sizes and over-sizes from McQuay-Norris electric iron.

McQUAY-NORRIS MANUFACTURING COMPANY. General Offices: ST. LOUIS, U. S. A.
Factories: St. Louis, Indianapolis, Connerville, Ind.; Toronto, Canada

PISTON RINGS-PISTONS-PINS-BEARINGS

Prest-O-Lite policies increase this company's sales 100%

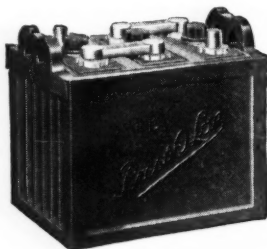


Prest-O-Lite

THE constant aim of The Prest-O-Lite Company has been to enable those who sell Prest-O-Lite Batteries to increase their business and make more money. And in this aim we have, practically without exception, been successful.

For example, read this letter from the Fairview Battery Service Station, of Fairview, N. J.:

"The sales and service policies, as outlined by you, have proved a revelation to us. Prest-O-Lite Batteries have given us wonderful results and we are more than satisfied. This applies to your general line,



both automobile and radio type batteries.

"With your three-way combination, namely, service, quality and price, we have been able to increase our battery sales at least 100 per cent in the past six months."

We are constantly receiving letters like this one. They prove conclusively that there is something different, something better, about the Prest-O-Lite merchandising plan.

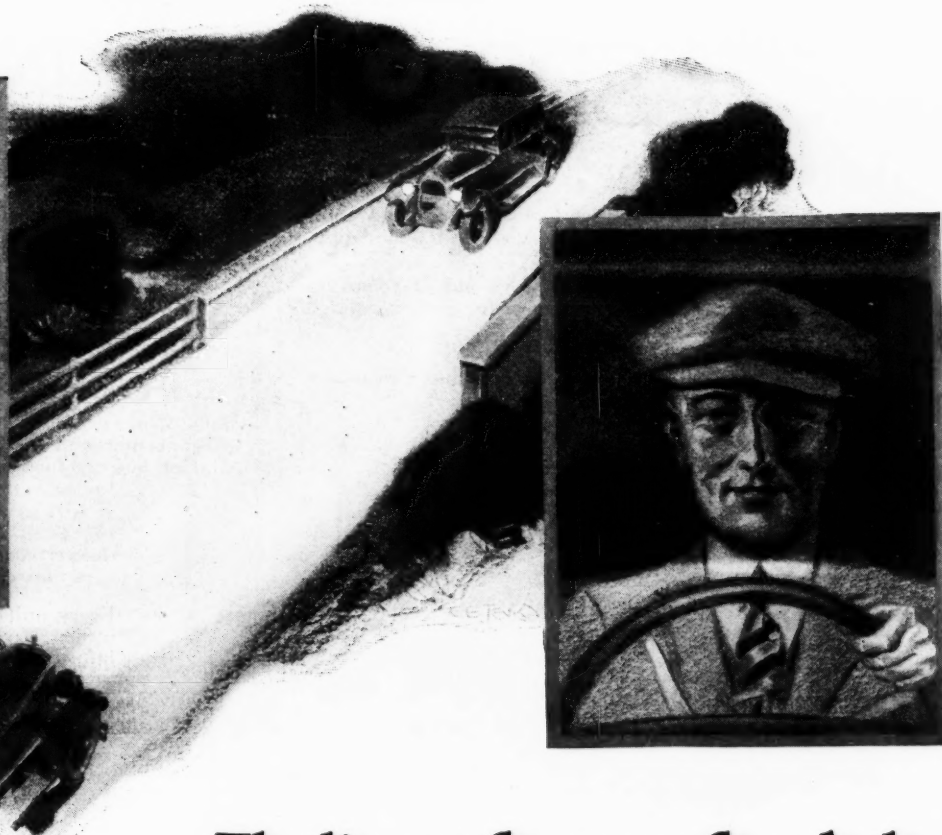
Write today for the interesting details of our plan and service station proposition. It will be a long step toward bigger business and bigger profits for you.

THE PREST-O-LITE CO., INC.
INDIANAPOLIS, IND.

New York

San Francisco

In Canada: Prest-O-Lite Company of Canada, Ltd., Toronto, Ontario



flatlite

REFLECTORS
AND
HEADLAMPS

WHEN all automobile headlamps are equipped to give the kind of light that flatlites give THEN and THEN ONLY will America's highways be safe for night driving.

THE AMERICAN FLATLITE CO.

Reading Road at Dandridge Street
CINCINNATI, OHIO.

flatlites bring daytime safety to nighttime driving

Flatlite reflectors flood the road with light *but keep the drivers' eyes in shadow*

THE flatlite principle of light control is entirely in the reflector. No diffusing lenses are needed. Plain glass replaces the usual lens which allows all the light to be thrown on the road, flooding the highway with a bright, safe light. The extra wide spread of this light is another safety aid—ditches become as well lighted as the road.

Flatlite reflectors can be installed in any headlamp. They go in right over the old reflectors. Flatlite headlamps complete are also supplied for all cars.

This makes the flatlite principle of headlight control available to every car owner. Millions of cars are flatlite equipped. Millions more will follow.

How about your share of this business? Write us today or clip and mail the flatlite opportunity coupon below.

THE AMERICAN FLATLITE CO.

Reading Road at Dandridge Street
Cincinnati, Ohio

Dept. A

Please send me full trade particulars on flatlite.

Name _____

Address _____

City or Town _____

State _____

☐ Check here if you want copy of 28-page book on Motor Car Lighting and special offer on Light Adjusting Station Equipment.

SPRAY-LAC UNIT

With Pressure Material Container

Applies Any Paint or Lacquer and Removes Paint

It is absolutely essential in order to turn out a good paint or lacquer job, to start on a smooth and clean foundation, to apply the new finish successfully.

SPRAY-LAC UNIT takes the hard work out of removing the old materials and applying the new for perfect results.

Priced Right for Any Shop

The first cost of a SPRAY-LAC UNIT is lower than any

similar outfit. Any shop can afford one. Each unit is sold on an absolute guarantee.

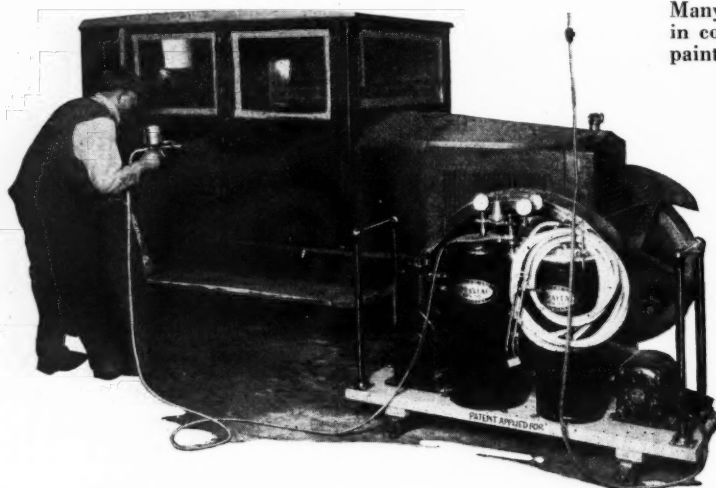
SPRAY-LAC UNIT is complete and ready for use when you get it. It is portable and can be attached to any lighting circuit. No installation cost. It is narrow—to fit between cars. It is recommended by leading paint and lacquer manufacturers.

Helps Solve the Used Car Re-Sale Problem

Many dealers find the SPRAY-LAC UNIT indispensable in connection with the re-sale of used cars. A treatment of paint or lacquer increases the re-sale value enough to pay for an outfit in a surprisingly short time.

It will help you in many ways beyond spraying paint or lacquer. It will operate an air duster, cleaner nozzle for engine and chassis, spray oil on springs, inflate tires, etc.

Every unit we know of is netting an extra income. We shall be glad to give you any further information on request.



Spray-Lac Mfg. Co. Not Inc.

5639 Harper Ave.
Chicago, Ill.



Read What
Mr. Waggoner Says!

Pocatello, Idaho,
Sept. 29, 1925
Simplicity Mfg. Co.,
Port Washington, Wis.
Gentlemen:

The Simplicity Reborer and Grinder is the biggest money-maker we ever saw. No otherwise equipped shop can possibly underbid you. We challenge anybody for accuracy. We get over 70% of the grinding jobs here. Simplicity machines and tools get us the business.

Waggoners Motor Inn,
By C. S. Waggoner

Why Do Owners of Successful Auto Repair Shops Install Simplicity Portable Cylinder Reborers and Grinders?

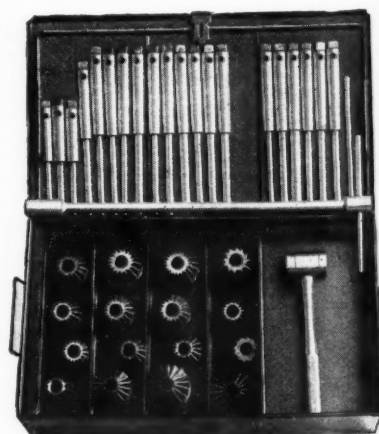
The answer is simple, because the "Simplicity" is a proven product, sold under a positive guaranty that it will Rebores and Re grind cylinders accurately. You take no risk when you buy a "Simplicity." Satisfaction Guaranteed.

You Can Buy a

Simplicity

Portable Cylinder Reborer and Grinder
on Easy Terms—Your Credit is Good

Write for our 1926 Catalog. It describes fully the Simplicity Reborer and Grinder, Valve Face Grinder, Re-Seating Cutters and Pilots, Crank Pin Tool, Connecting Rod Aligner and Bench Grinders.



Re-seating Cutters
and Pilots

Simplicity Manufacturing Company
110 Spring Street

Port Washington, Wis.

Experienced Garage Mechanics with sales ability and small capital wanted in our sales organization.

GF Allsteel

The Complete Line of Office Equipment

Allsteel Files

DRAWERS that operate at a touch, with velvetsmoothness—greater filing capacity per unit—unusual fire protection—and *no wearing out*. All these are *Allsteel* File advantages.

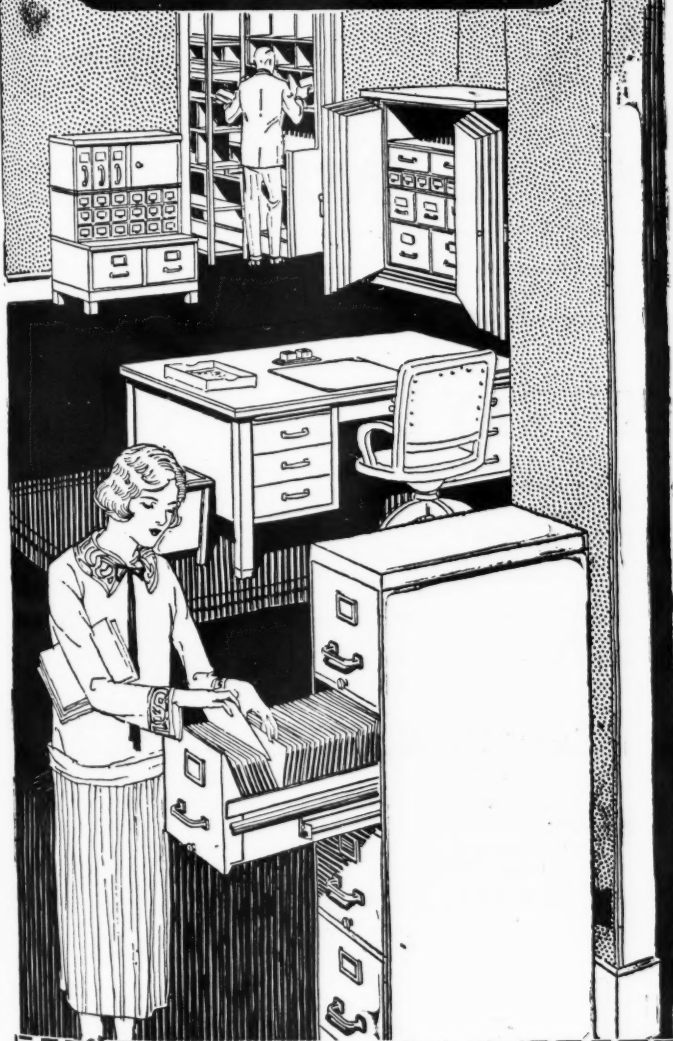
Welded construction throughout, beautifully and richly finished in baked-on enamel, *Allsteel* Files—like the entire *Allsteel* Office Equipment line—guarantee you *permanent* satisfaction, at a reasonable cost.

Write for the new GF Allsteel Furniture Catalog.

THE GENERAL FIREPROOFING CO.

Youngstown, Ohio

Dealers Everywhere • Canadian Plant: Toronto, Ontario



Attach this coupon to your firm letterhead

MA

The General Fireproofing Co., Youngstown, Ohio

Please send me without obligation a copy of your Allsteel Furniture Catalog.

Name.....

Firm.....

Street No.....

City.....

State.....

Read What A. H. McInnis Says About Stormizing!

Here's what Mr. McInnis of the Continental Motor Service, Philadelphia, said about his Stormizing Machine:

"We have used several other makes of re boring tools and can truthfully say that we consider the 'Storm' the best.

Since using this tool we have no difficulty in getting a round, true bore square with the crankshaft.

The big feature of this tool in our estimation is that we do the complete operation in the chassis as a big savings of time, whereas before the block was removed and sent out necessitating a much higher labor charge."

Wherever you find a Storm Equipped shop, you will find an enthusiastic booster for Stormizing. It's because the mechanical principles of Storm Machines are right—beyond question. Stormizing places precision work under positive control, without depending on the mechanic for accuracy. Besides, Stormizing is fast. It works automatically, permitting the attendant to do other work while the machine is in operation.

The low cost of Stormizing equipment has opened a wonderful field of repair profits for every shop, regardless of size. It won't cost you a cent to get full details about *Stormizing*—it may mean a big increase in profits for you.

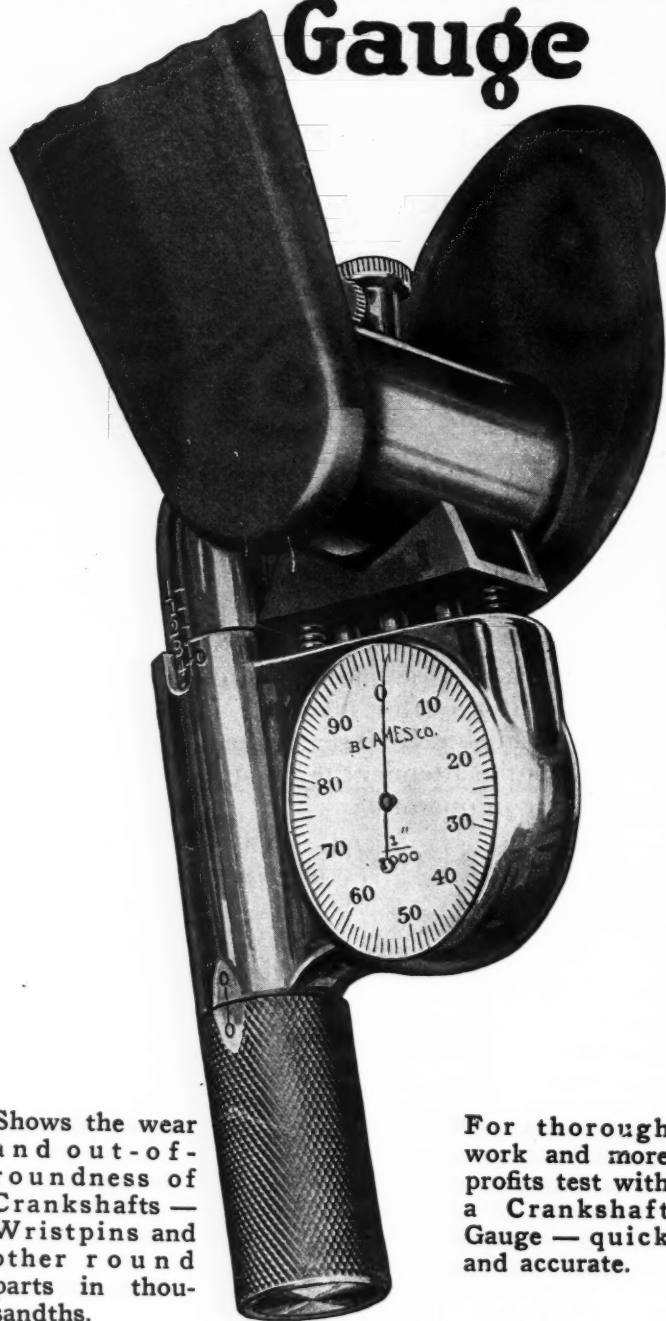


The photograph shows the Model M machine in operation. There are three other Stormizing models—Model S, Portable; Model R, Stationary; Model F, specially designed for Fords and Fordsons.

STORM MFG. CO., INC.

406 (A) 6th AVE, SO., MINNEAPOLIS, MINN.

AMES Crankshaft Gauge



Shows the wear
and out-of-
roundness of
Crankshafts —
Wristpins and
other round
parts in thou-
sandths.

For thorough
work and more
profits test with
a Crankshaft
Gauge — quick
and accurate.

Buy from your Jobber
or send for folder

B.C. AMES CO. Waltham, Mass.

"Largest Makers Dial Gauges in the World"

No
Water-
Pump
Necessary
With
This



NEW Fan for Fords!

Cools the engine better than ordinary fan and water-pump combined. Tests prove it. Keeps heavy volume of air going through radiator. Expels warm air from under hood. Eliminates all overheating troubles regardless of weather, hills or loads.

Scientific design. Has 24 blades. Consumes no additional power. Puts no extra stress on fan belt. A single steel stamping—nothing to get out of order. Installed in 5 minutes. Retail at \$3. Long discounts to you. Accept our 10 days' Free trial offer. De Bothezat Impeller Co., Inc., 1922 Park Ave., New York City.

**10 Days
Free
Trial**

G. B. IMPELLER

Another Fast Selling Number
of the

DO-RAY LINE

An all brass lamp, heavily nickel plated, with Bausch and Lomb lens, hinged door, patented locking device and S. A. E. mounting. Fits 90% of cars built during the last 3 years.

Same can be furnished with special Hudson and Essex Bolt. For all Hudson and Essex Models from 1923 to 1925.



Exact Duplicate Lamps in Stock

—for Dodge, Chevrolet, Ford, Flint, Nash, Buick and numerous others. Write for our complete catalog and discounts on our complete line of lamps and lamp parts, such as reflectors, rims, lenses, Hub Caps, etc.

If your jobber can't supply you, write us direct



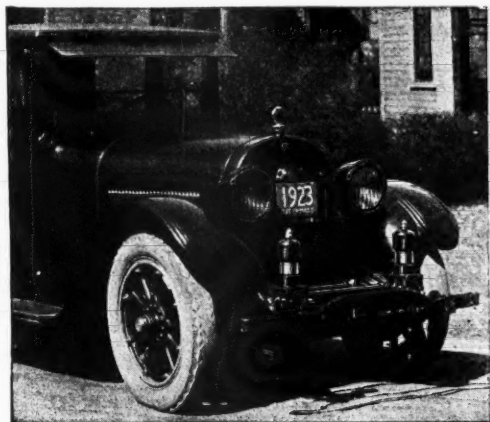
DO-RAY LAMP CO., INC.

1458 S. Michigan Ave.

Chicago

WESTINGHOUSE AIR SPRINGS

*New Balloon Type Models—
New Low Prices*



\$75 \$100 \$125
JUNIOR MIDWAY HIGHWAY

If you knew half the things that Westinghouse Air Springs will do—

If you knew the profit there is in selling and installing them—

If you knew all about our new lower prices and our new improved models—

You would be telegraphing now to find out all about our dealer proposition.

Get in touch with us right now—we will see that you get full information.

The WESTINGHOUSE AIR SPRING COMPANY

New Haven

Connecticut



*The Most Efficient Known Method
of Shock Absorption*



Where Tapping Looks Difficult

Here's a tapping job that looks difficult. A complete turn cannot be made. Something could be moved—that takes time. But it's easy with a

"YANKEE" Ratchet Tap Wrench

In this case, the mechanic simply set the Ratchet Shifter to give him right-hand ratchet.

Then, by turning the cross bar back and forth, he quickly finished the job.

No matter where the hole is you can tap it with this handy tool.

Three adjustments. Right-hand Ratchet, Left-hand Ratchet and Rigid. Knurled finger turn at top quickly starts or backs out taps.

No. 250—Length 3¼ in. Chuck diam., ¼ in. Holds up to 3/16 in. taps.

No. 251—Length 5 in. Chuck diam., ⅜ in. Holds up to 5/16 in. taps.

No. 1251—Length 13 in. For jobs needing long reach. Otherwise same as No. 251.

Some other "Yankee" Tools
Brake Lining Cutter
Automatic Feed Chain Drills
Automatic Feed Bench Drills
Ratchet Breast and Hand Drills
Ratchet Screw-drivers
Vises, Removable Base

"Yankee" on the tools you buy means the utmost in quality, efficiency and durability.
Dealers Everywhere Sell "Yankee" Tools

Free Tool Book—

Tells all about the famous "Yankee" Tools.
Write for your copy today.

North Bros. Mfg. Co., Philadelphia, U. S. A.

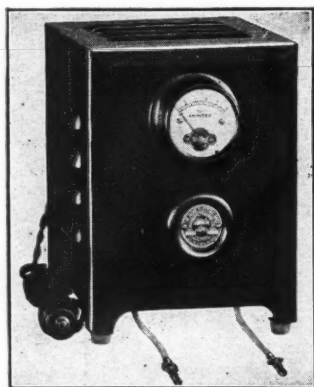
"YANKEE" TOOLS

Make Better Mechanics



Quick Battery Service

Save time and money for your customers by charging their batteries in your own plant with an Acme Charger. Saves labor in your plant, saves rental time for your customer and increases your profits.



Best By Test

Acme Dreadnaught Type AD-6 shown here charges up to six 6-volt storage batteries at a 5 ampere rate. Bulb type. Ideal for overnight charging. Guaranteed efficient. Starts automatically on line current interruption.

\$50.00

complete with bulb. \$60.00
West of Rockies.
Order from your Jobber
today or write us

Manufacturing for Ten Years
The Acme Electric & Manufacturing Co.

1420 Hamilton Avenue

Cleveland, Ohio

Send to me without obligation full information on your Acme Chargers.

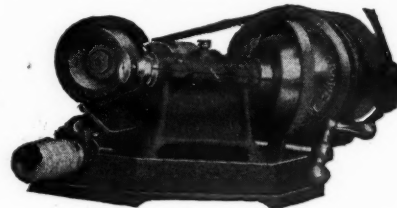
Name Address

Individual Town

You Can Bank Profits Now Lost In Wasted Efforts!



No longer do you need to take from one to three hours for a valve re-grinding job. A Crowe Cup Wheel Valve Refacer will turn out first-class work on any valve in about thirty seconds. And the quality—the efficiency of the job will be 100% more than you could possibly get from hand operation.



Ruggedly and simply built, a Crowe will give you life-long, faithful service. Costs just about half what you'd expect to pay for equipment of this kind and labor saving ability. Easy payment plan places it within reach of every shop owner—makes its installation cost come from the increased profits a Crowe brings you. Let us send you a machine for trial—use it in your own shop. Your money will be refunded if you are not fully pleased at the end of 10 days. Write us today!

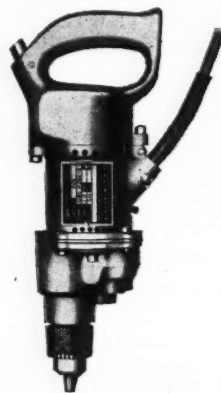
LISLE MFG. CO., Box C, Clarinda, Iowa

You're Always Needing

Your

Thor

Portable
Electric Drill



Every time you want to drill down broken studs or bolts; clean carbon from valves; polish valve stems; drill holes in windshields, instrument boards or dashes; drill frames for attachments; drive screws and nuts; drill holes in otherwise inaccessible positions, etc., you need your THOR Portable Electric Drill.

Once installed, you won't get through a day without it.

As a safety feature, all THOR Electric Drills have a ground wire—shocks are impossible.

Write for "Inside Facts," the most valuable folder on electric drills.

INDEPENDENT PNEUMATIC TOOL COMPANY

GENERAL OFFICES: 800 W. JACKSON BLVD., CHICAGO, U.S.A.
CLEVELAND, OHIO
PHILADELPHIA, PA.
SAN FRANCISCO, CAL.
DETROIT, MICH.
ST. LOUIS, MO.
BOSTON, MASS.
NEW YORK, N.Y.
LONDON OFFICE: 40 BROADWAY, WESTMINSTER, LONDON S.W.1, ENGLAND

PNEUMATIC
TOOLS



ELECTRIC
DRILLS



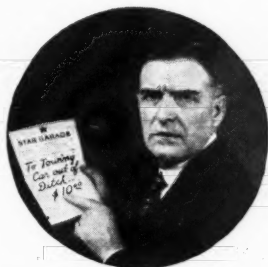
For Your Display of Vacation Hints

Campers and motor tourists should be reminded that Crescent tools are an important part of the outing kit. The new Crescent series of window cards will serve to supplement the display qualities of the tools themselves. Be sure to give them a turn in the window this month.

Originators
of the
Crescent
Wrench

CRESCENT TOOL COMPANY
208 Harrison St.
Jamestown, N. Y.

CRESCENT TOOLS



"I could buy an Autowline at half the cost!"



"Oh, if we only had an Autowline!"



"Out she comes with good old Autowline!"



"A life preserver for every motorist!"

Push the ORIGINAL Wire Rope Towline!

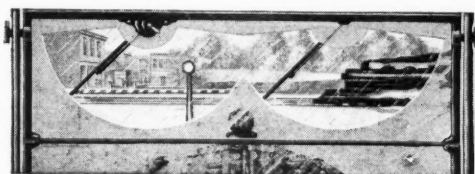
Remember—and tell your trade to remember—that when a towline is needed, it wants to be an absolutely *dependable* one. Keep in mind that **BASLINE AUTOWLINE** is made of genuine Yellow Strand Wire Rope famous for many years—that it has a reputation for quality, strength and dependability attained by no other towline.

Pays You a Good Profit

Jobbers and Dealers, send for our current price list and you'll see that you can meet the competition of practically any other honest towline on the market—and make some real money doing it!

BRODERICK & BASCOM ROPE CO., St. Louis

Eastern Office and Warehouse, 76 Warren St., New York City



Send to

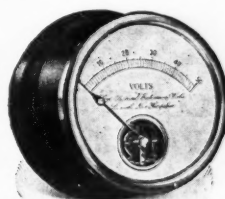
Owen-Dyneto Corporation

SYRACUSE, N. Y.

for letter about the Amazing Profits dealers are making selling Dyneto Tandem Electric Windshield Wipers.

New car buyers are choosing the Dyneto. Thousands of drivers are replacing older types with this quiet, powerful, dependable, proven tandem wiper. Quickly installed. Guaranteed to the limit! **RETAILS FOR ONLY \$6.00** with two blades operating in tandem. **\$4.50** with single blade.

Write your name on the margin of this page, tear out and mail now. You will be interested.



Hoyt Switchboard Meters

Mounted on your built-up discharge test sets, Cadmium Testers, battery-charging control-panels and general service-station work, will increase your business and good will. Remember that the best equipped service-station gets the work.

The HOYT "6"

Switchboard Meter has a highly polished brass rim 6½" in diameter, and the scale can be read across the room. Equipped with a heavy and rugged, yet absolutely precise action. It will give indefinite service.

HOYT makes special leads for use with these meters. Consult us as to your requirements. We will gladly assist you in the design of special testing equipment.

Fill out the coupon—pin it to your letter-head and have your secretary mail it today.

Burton-Rogers Co.

Boston, Mass.

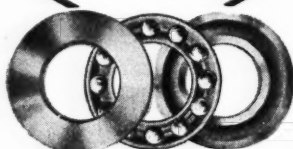
26 Brighton Ave.,

National
Distributors

Burton-Rogers Co.
Boston, Mass.
Gentlemen: Please send us your latest catalogue
"Hoyt Switchboard Meters."

STAR BALL RETAINERS

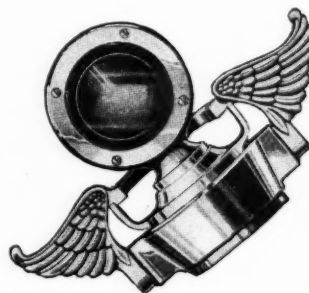
for Thrust, Magneto and Cup and
Cone Types of Bearings



THE BEARINGS COMPANY
OF AMERICA

Lancaster, Pa.

Western Sales Office, 1012 Ford Bldg., Detroit, Mich.



The Cap that's making records

Car owners as well as car dealers have been quick to see the advantages of this lasting cap of bronze. Sales reflect its popularity and the demand is growing every day. Write for information.

Prices

Junior Cap \$4.50

Regular size \$6.00

The **ELLISON**
U. S. STANDARD BRONZE
RADIATOR CAP

ELLISON BRONZE CO., INC.

Jamestown, N. Y.

HUFFMAN MOTOR TRUCKS

*"The World's Most Economical
Haulage Equipment"*

Widely known for abundant power, durability, dependability, accessibility and standard and nationally advertised units. Prompt deliveries are made from stock on floor. Demonstrations now.

Dealer Contracts
operative by July 1st.
Get in touch with the
Chicago office for full
particulars now.

Valley Motor Truck Company

Manufacturers of Huffman Trucks

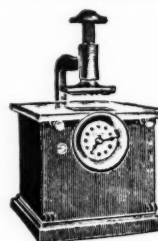
2108-10 S. Wabash Ave.

Factory at Elkhart, Indiana

Chicago

FOLLETT'S NEW MODEL TIME STAMP

accounts for every labor minute



Prints the year, month, day, hour, minute, A.M. or P.M. at the exact moment the plunger is pressed—like this, for example:

NOV 19 1920 4 31 PM

Tells when a job is started—and when it is finished. There can be no dispute over the time charge.

Absolutely automatic—except for winding. Every machine guaranteed.

Follett Time Recording Co., 217 High Street, Newark, N. J.

"Established Since 1904"

TENAX

"Original Blue Sheet" COMPRESSED
ASBESTOS SHEET PACKING

Makes a Quality Job

Thousands of repairmen have used TENAX Asbestos Packing exclusively for years for service in those parts of automobiles where there is HEAT. Its convenience and quality have made it standard shop equipment. And TANPAC Fiber Sheet Packing, too, for packing where there is NO HEAT. Tough as rawhide, highest tensile strength.

Write for literature covering the entire
ADVANCE Line

Advance Packing & Supply Co.

808 Washington Blvd.

Chicago, Ill.

Pacific Coast Distributors:

Allied Industries, Inc., Los Angeles, San Francisco, Portland, Seattle



MORRISON Automatic Double Range

Worm Drive
JACKS

Special model
for Balloons

Can't Slip or Tilt

Flexible steel "Sure Hold" cap prevents dangerous slipping. Long folding handle (36 to 72 in.) operates from standing position. Gets up under overhanging bodies. Easy to work. Few turns and it's up. Built in 11 sizes for all service requirements up to 4 tons. Furnished as standard equipment on fine passenger cars, trucks, buses and Fire Apparatus for past 4 years. The Jack for YOUR shop. Write for sample for test.

THE WOODS ENGINEERING CO., Alliance, Ohio
General Sales Representatives for Canada, carrying branch
warehouse stock:
Colonial Traders, Ltd., Chatham, Ontario, Canada.

Faith WING LOCKING CAP

MOTOR
SAFETY SIGNALS
MADE FOR ALL
CARS

JUNIOR
SIGNAL **1⁵⁰**

THE LATEST, BEST
AND LOWEST
PRICED ON THE
MARKET

Ask your
jobber **2⁰⁰**



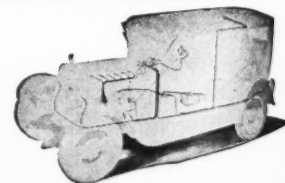
Faith Mfg. Co.

2539 N. Ashland Ave.
Chicago, Ill.

Made in
Junior Model G.
Ford, Gray, Chevrolet,
Essex, Oldsmobile, Star,
Overland Maxwell, Willys
Knight, Chrysler, Dodge,
Studebaker, Cleveland

Packard Cable

The Packard Electric Co.
Warren, Ohio



LIKUM Alarm LOCK

TYPE A
\$5.00

Locks ignition and sounds
horn if tampered with

TYPE B
\$7.00

LOOMIS - KNIGHT - MILLER, Inc.
SPRINGFIELD - MASSACHUSETTS



Our SAMPLE CASE



In my Sample Case I carry only representative products and call upon a big majority of the really worth-while retailers who are logical outlets for your merchandise.

I cover the whole territory once a week. Not only do I get favorable attention from the owner of each establishment, but the salesmen and the service men—even to the lads at the gasoline pumps—get my story.

If you are a manufacturer with desire for good representation to dealers just ask MOTOR AGE to write you about the small cost of the service I am prepared to render you.

Sam P. Case
Care of MOTOR AGE, 5 S. Wabash Ave., Chicago

The Tool Every Mechanic and Service Station Needs

Not 20 minutes per valve but 30 minutes for the whole set of valves. Its smooth oscillating movement laps in the valve seats of any 6 cyl. motor with but 1/4 hour's use of electric current. Fits any 1/4" capacity drill. Makes Flat Rate profitable.

Cheaper by \$15 or \$20 than any other tool doing the same class work. Act now. Write for details. Kess Mfg. Co., Harrison Bldg., Philadelphia, Pa.



KESS VALVE GRINDER

IT'S THE BRAZIER FOR GARAGES AND AUTO MECHANICS



Covered by patents No. 70, 1 GALLON EXTRA LARGE BURNER
WRITE FOR COMPLETE CATALOG

The "ALWAYS RELIABLE" torches and furnaces really live up to their name. They will stand any amount of use, much abuse, and still give your men the kind of service they have a right to expect.

Jobbers sell at factory prices.

OTTO BERNZ CO., INC.,
Newark, N. J.

Established 1876

Offices in New York City, Chicago, Fort Worth, Denver, Helena, Mont., San Francisco, Los Angeles, Seattle, and St. Thomas, Ont.

ANCHOR BALL BEARING SHOCK ABSORBER

A New and Better Idea

Fits 95% of all cars

List Price \$10.00

Big discounts to dealers

A BIG SELLER. Write for circular and special dealer offer

ANCHOR ELECTRIC CO.

557 W. Jackson Blvd. CHICAGO



Your Story in This Space

will reach the eyes of thousands of retailers who are on the lookout for new salable products. It is a good way to make profitable contacts with big buyers.

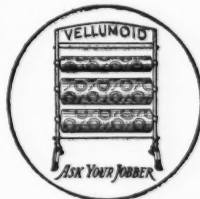
Drop us a line for further particulars

Sample Case Salesman

MOTOR AGE

5 So. Wabash Ave.

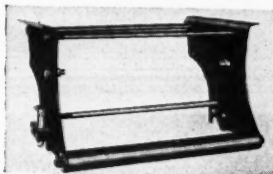
CHICAGO, ILL.



A quality product which saves the repairman time and trouble.

VELLUMOID
THE VELLUMOID REAL
REPLACEMENT GASKET MATERIAL
M'd by The Vellumoid Co., Boston, Mass.

Now's the time for—



A real money-making dealer proposition. The Bradley line of trunk and rack equipment is the most complete line on the market. Models for almost every car. Easily installed without drilling the frame. Be ready for touring season. Write now for complete information.

Bradley Motor Products Co.
Fostoria, Ohio

BRADLEY TRUNKS AND RACKS



Stops Pump Shaft Leaks Immediately and Permanently

Conneaut Plastic Metallic Packing molds in the fingers to fit stuffing-boxes of any shape or size. It is a repair for the worn shaft and loose bushing. At your Jobbers in 1-pound and 5-pound cans; if not, write us.

CONNEAUT PACKING COMPANY
Conneaut, Ohio

Prevent
This

TIMKEN

Tapered ROLLER BEARINGS



Write for
Attractive Discounts

Always Insist Upon Genuine Apex Innerings

Most good
Jobbers stock them
If it isn't an Apex—it isn't an
Innering

THOMSON MFG. CO.
Dept. C Peoria, Ill.

BOLTS BLUE PRINT BUSHINGS

"Made to Blue Print"

"Bp"

guarantees to the Replacement Trade the same high standard of Quality and Accuracy demanded by the car manufacturer.

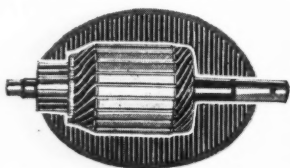
The Fostoria Screw Co., Fostoria, Ohio

"Bp"

Gemco BUMPERS

Tempered and nickel plated by our own exclusive process. Maximum strength, lasting beauty of finish. Write for catalog.

760 S. Pierce St. Milwaukee, Wis.



FREDERICKS Rewinding Service

New Rewind Profits—See announcement every 4th week. Write now for price list. The H. M. Fredericks Co., Lock Haven, Pa.

HALL HONE \$35.

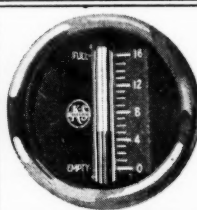
at your
Jobber's

Spring and Solid Pressure in one Hone

Gilmer

Makers of
the worlds
best known
fan belts.

L. H. GILMER COMPANY, Tacony, Philadelphia, Pa.



The K-S GASOLINE Telegage

A gasoline gauge on the Dash. Note our half page advertisement in the Saturday Evening Post, June 12th. Write for description and proposition to the trade.

KING-SEELEY CORPORATION
298 Second Street Ann Arbor, Mich.
Chicago Branch, 2450 Michigan Boulevard

Transmissions
and Clutches



Trucks, Busses
Passenger Cars

QUICK SERVICE ON COMPLETE UNITS OR PARTS

BROWN-LIFE GEAR CO.

SYRACUSE, N. Y.



Mallory Ignition Coil

Has two primary windings instead of one. Gives a hotter spark, makes easier starting, gives more power, quicker pickup and more mileage. Try it on a sluggish motor.

The Mallory Electric Corporation, Toledo, Ohio.

ZENITH CARBURETOR

More
Power
Less
Fuel

Zenith - Detroit Corporation, Detroit, Mich.

"Tough as a Rhino"

CUPPLES DIAMOND JUBILEE CORDS - EXTON CORDS

CUPPLES COMPANY, Mfrs., St. Louis
A National Institution Since 1851



QUALITY—PROFIT—TURNOVER

American Hammered Piston Rings

American Hammered Piston Ring Company
Baltimore, Maryland

TASCO
Gas Gauge for
FORD
CHEVROLET and
OVERLAND



Sells Quick at
\$1.25
Retail

THE AKRON-SELLE CO.
Akron, Ohio

Thermoid

Hydraulic Compressed Brake Lining

FROM THICK
TO THIN
DOWN TO THE
LAST PLY
IT HOLDS



The SO-LO JACK

\$6.00 Retail

West of Mississippi \$5.50

4 1/2" LOW-HIGH 15 1/4"

The REAL Balloon Tire Jack

All Steel Construction

POWERFUL—STURDY—EASY TO OPERATE

A Sure Seller with your Trade

SO-LO JACK CO., Inc.

108 Massachusetts Ave., Boston, Mass.

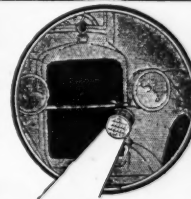
THE WALDEN FORE-LITE

Mounted ahead of the radiator and operated like a spotlight from the instrument board, the WALDEN Fore-Lite satisfies a need hitherto filled by make-shifts. Universal fittings. Selling fast wherever introduced. Ask your jobber, or write us direct, giving his name.

THE WALDEN CO.

2017 S. Michigan Ave.

Chicago



DILL INSTANT-ONS

Dust and Valve Cap

Off or On in 5 Seconds

The Dill Manufacturing Co.

Cleveland, O.

"As Silent as a Shadow"

Quincy Compressors

Quincy, Illinois

J-538



Here's the Way to Sell Tire Chains

Let the package they come in display them. By making them easy to buy, you automatically make them easy to sell. Dealers like the WESCO carton. Write.

Western Chain Company
Chicago, U. S. A.

ELIMINATES SLOW LEAKS

—from rusted clincher rims. An endless piece of specially compounded rubber. Snaps on rim like rubber band. Fits snug all around. Prevents tube touching rusted rim. One size fits all clincher rims. Write for discounts.

LAENG MFG. CO.

CLEVELAND, OHIO

Laeng
Clincher Rim Flap



The Original
Bosch

Franchise details for selling ORIGINAL BOSCH Automotive Equipment will be sent to any Distributor, Dealer or Service Station on request.

ROBERT BOSCH MAGNETO CO., Inc.
109 West 64th Street

New York, N. Y.



ORIGINAL BOSCH units bear the full name, Robert Bosch, and the trade mark shown at left. These are the identifications of Bosch quality—famous since 1887.

KISSEL

CUSTOM BUILT

Kissel Motor Car Co., Hartford, Wis.



Guaranteed Unbreakable Gear Shift Ball

Made in all combinations from 11 basic colors. Packed 18 in attractive counter display box. Counter display cards also furnished. Complete with all necessary bushings. 2 in. in diameter. Highly polished. Fast seller. Price \$1.25. Write for details and catalog of entire line of 12 items. Order from your jobber or direct.

RAINBO ACCESSORIES COMPANY

1420 S. Michigan Ave.,

Chicago, Ill.



SPEE-DEE CLEANS UP for Dealers

Results in quick stock turn-over, with small investment and liberal profits. Without water it removes grease, stains, etc., from hands, clothes, upholstery, paint or enamel. Indispensable in shops, service stations and car kits. List 35c.

Write for discount details.

States Chemical Company

703 W. Fulton St.

Chicago, Ill.

CLASSIFIED ADVERTISING

PARTS

AUTO PARTS

Saves 50% to 75% on all cars

New and Used Gears—Springs and Axles—Cylinders—Motors—Rear Systems, etc. Wire or write

INDIANA AUTO PARTS CO.

608-10 N. Capitol Ave.,

Indianapolis, Ind.

LARGEST CAR WRECKERS IN INDIANA

HOUSE OF A MILLION AUTO PARTS

The largest stock of new and used car and truck parts in the world. We have everything. Always mention model and serial number in order. Write us. All inquiries answered promptly.

DOUGLAS AUTO PARTS CO., INC.

2003-5-7-9 South State St., Chicago, Ill.

PATENTS & PATENT ATTORNEYS

Attorney-at-Law and Solicitor of Patents

C. L. PARKER

Formerly Member Examining Corps, United States Patent Office

American and foreign Patents secured. Searches made to determine patentability and validity. Patent suits conducted. Pamphlet of instruction sent upon request.

McGill Building, WASHINGTON, D. C.

BUSINESS OPPORTUNITIES

A going concern operating three Sales and Service Stations of a well known make of automobile, desires to dispose of two of its Branches in two of the largest towns in North Carolina, in order to concentrate at Home Office. Come to the Sunny South and improve your health and finances. Address Box 6269, Motor Age, 5 S. Wabash Ave., Chicago, Ill.

WANTED—Interest in going tire business in small Western city. Sales and repair experience. Box 6266, Motor Age.

REPRESENTATION WANTED

Established New York and Atlantic seaboard factory representative in replacement parts can get distribution and serve one or two more kindred lines. Will meet manufacturers anywhere. Address Box 6268, Motor Age, 5 S. Wabash Ave., Chicago, Ill.

HELP WANTED

WANTED—Auto Mechanics to act as part or full time salesmen. Make big profits, build steady income selling our complete line guaranteed hand tools. Be our agent in your shop; buy your tools at wholesale. Write for free catalogue and money-making plan. J. G. Woods, Inc., 37 West 20th St., New York, N. Y.

SALESMEN WANTED in several States to handle The Winther Spoke Tightener. Every shop needs one. C. W. Winther, Fresno, Calif.

BUSINESS OPPORTUNITIES

"Clearing \$400 month with my Haywood Vulcanizer. Some return on a \$350 investment." Tire repairs paying big. We furnish everything. Train you free. Easy terms. Haywood Tire Equipment Company, 1318 South Oakley Avenue, Chicago.

Pick the Profits out of Squeaks

EVERY car with a squeak is a profit possibility. A squeak means friction,—and friction means wear and destruction—and the only sure way to prevent the consequent loss is by THURO LUBRICATION.

These are facts no car owner can dodge,—and when you tell him about it—and show him how you can stop that friction by THURO Lubrication, you're saving money for him and putting profits into your own pocket.

Larkin-Thuro High Pressure Lubricating Equipment is made for repair and replacement purposes on all cars, trucks, tractors, etc., equipped with Alemite-Zerk Lubricating systems.

A Larkin-Thuro Compressor can be attached in an instant—then a turn of the wrist and a push of the handle and the lubricant is forced into the bearing under high pressure, lubricating every part. And this should be done frequently—every few days,—to keep away the squeak.

Tell this story to the owners of squeaky cars,—and also to those whose cars are not yet squeaky. 'Twill make them happy and increase your profits.

Ask your jobber about Larkin-Thuro Lubricating Equipment—or write us giving your jobber's name.

The Larkin Automotive Parts Co.
2066 Home Ave. Dayton, Ohio

Larkin Thuro High Pressure Lubricating Equipment is made exclusively for repair and replacement parts on any car or truck that is equipped with Alemite or Zerk Systems.



Index to the A

The Advertisers' Index is published as a convenience and not as a part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

A. C. Spark Plug Co.....	53	Crescent Tool Co.....	106
Acme Electric & Mfg. Co.....	106	Cupples Co.	110
Advance Automobile Acces- sories Corp.	58 & 59	Curtis Pneumatic Mach. Co.....	98
Advance Packing & Supply Co.	108		
Akron-Selle Co., The.....	110		
Albertson & Co.....	61	De Bothezat Impeller Co., Inc.....	104
American Flatlite Co.....	101	Detroit Steel Products Co.....	68 & 69
Amer. Hammered Piston Ring Co.	110	Dill Mfg. Co.....	111
Ames Company, B. C.	104	Do-Ray Lamp Co., Inc.....	104
Anchor Electric Co.....	109	Durkee-Atwood Co.	67
Auburn Automobile Company.....	83		
		Eclipse Machine Co.....	2
Badger Rubber Works.....	93	Ellison Bronze Co., Inc.....	108
Bearings Co. of America.....	108	Empire Tire & Rubber Co.....	91
Bernz Co., Otto, Inc.....	109		
Biflex Corp., The.....	82	Faith Mfg. Co.....	108
Blackhawk Mfg. Co.....	52	Follett Time Recording Co.....	108
Bonney Forge & Tool Works 2nd Cover		Fostoria Screw Co.....	110
Bosch, Robert, Magneto Co.....	111	Fredericks, H. M., Co.....	110
Bradley Motor Products Co.....	109		
Brewer-Titchener Corp., The.....	88	G. H. Tension Ring Co., Inc.....	114
Broderick & Bascom Rope Co.	107	Gates Rubber Co.....	75
Brown-Lipe Gear Co.....	110	Gemco Mfg. Co.....	110
Brunner Mfg. Co.....	51	General Fireproofing Co.....	103
Budd Wheel Co.....	89	General Motors Corp.....	78 & 79
Buick Motor Co.....	1	Gilmer Co., L. H.....	110
Bunting Brass & Bronze Co., The	92		
Burd High Compression Ring Co.	96	Hall Mfg. Co., The.....	110
Burroughs Adding Machine Co.	87	Hardie Mfg. Co.....	71
Burton-Rogers Co.	107	Hudson Motor Car Co.....	14. Cover
		Hydraulic Brake Co.....	47
Cadillac Motor Car Co.....	49		
Chevrolet Motor Co.....	3rd Cover		
Chrysler Sales Corp.....	8	Independent Pneu. Tool Co.....	106
Classified Advertising Section.....	111		
Conneaut Packing Co.....	110		
Cooper Mfg. Co.....	56 & 57	Johns-Manville, Inc.	65 & 66

Kawneer C
Kess Mfg.
King-Seeley
Kingsley-M
Kissel Mot
Laeng Mfg
Larkin Au
Lisle Mfg.
Loomis-Kni
Lupton's, I
Mallory El
McQuay-No
Milwaukee
Motor Whe
Multibestos
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Neutrowou
New Depar
No Rad Ru
Norlipp Co
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Owen-Dyne
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Peerless Mo
Prest-O-Lit
Pyrene Mfg

Quincy Cor
Rainbo Acc

e Advertisements

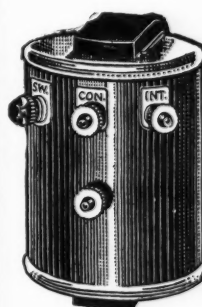
Kawneer Co., The.....	90	Sample Case Section.....	109
Kess Mfg. Co.....	109	Simplicity Mfg. Co.....	102
King-Seeley Corp.	110	So-Lo Jack Co., Inc.....	111
Kingsley-Miller Co.	86	Spray-Lac Mfg. Co.....	102
Kissel Motor Car Co.....	111	States Chemical Co.....	111
		Stewart-Warner Speedometer Corp.	76
		Storm Mfg. Co.....	103
Laeng Mfg. Co.....	111	Stromberg Motor Devices Co.....	50
Larkin Automotive Parts Co.....	112	Studebaker Corp., The.....	5
Lisle Mfg. Co.....	106	Stutz Motor Car Co.....	4
Loomis-Knight-Miller, Inc.	108		
Lupton's, David, Sons Co.....	81		
		Thermoid Rubber Co.....	110
Mallory Electric Corp., The.....	110	Thomas Mfg. Co., W. H.....	60
McQuay-Norris Mfg. Co.....	99	Thompson Products, Inc.....	84 & 85
Milwaukee Motor Prod., Inc.....	77	Thomson Mfg. Company.....	110
Motor Wheel Corp.....	Back Cover	Thordarson Electric Mfg. Co.....	113
Multibestos Co.	80	Timken Roller Bearing Co.....	110
Murray Rubber Co.....	64		
		U. S. Electrical Tool Co.....	70
Neutrowound Radio Mfg. Co.....	58 & 59		
New Departure Mfg. Co.....	7	Valley Motor Truck Co.....	108
No Rad Rust Corp.....	72 & 73	Vellumoid Co.	109
Norlipp Co., The.....	97	Vesta Battery Corp.....	6
North Bros. Mfg. Co.....	105		
		Walden Co., The.....	111
Owen-Dyneto Corp.	107	Walden-Worcester, Inc.	74
		Webber, P. H., Co.....	94
Packard Electric Co.....	108	Western Chain Co.....	111
Peerless Motor Car Co.....	62 & 63	Westinghouse Air Spring Co.....	105
Prest-O-Lite Co., Inc., The.....	100	Woods Engineering Co.....	108
Pyrene Mfg. Co.....	95	Wright Mfg. Co.....	3
Quincy Compressor Company.....	111	Zenith-Detroit Corp.	110
Rainbo Accessories Co.....	111		



That owner will change from a pessimist to a smiling, talking, traveling advertisement for you, the man who puts Primax ignition on his car.

Such satisfied folks among your customers will open the way to a new line of profit in the automotive field.

Let us send you the information that tells how it's done.



THORDARSON PRIMAX IGNITION

THORDARSON ELECTRIC MANUFACTURING CO.
Transformer specialists since 1895
WORLD'S OLDEST AND LARGEST EXCLUSIVE TRANSFORMER MAKERS
Chicago, U.S.A.

MAIL THIS COUPON NOW!

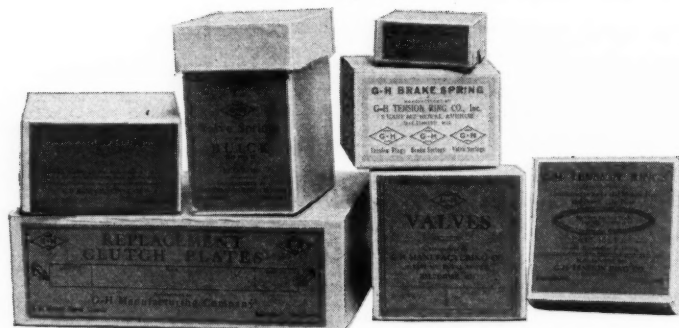
THORDARSON ELECTRIC MFG. CO.
500 W. Huron St., Chicago, Ill.

Send complete sales information and net trade prices on Primax Ignition Transformers.

Name

AddressA-6

A Profitable Line



Products

Brake Springs
 Clutch Plates
 Clutch Springs
 G-H Tension Rings
 Piston Pin Retaining
 Springs
 Universal Joint Parts
 Valve Lifter Assemblies,
 Guides, Rollers, Etc.
 Valve Springs
 Valve Keys
 Valves

THE combined judgment of successful Jobbers and Repairmen is its best endorsement!

The fact that hundreds of Jobbers continue to stock and sell G-H Products year after year is the highest recommendation possible from a standpoint of Quality, Performance—and satisfactory Profit.

Repairmen owe it to themselves and the customers they serve to use only replacement parts of the highest standards—G-H meets these requirements.

Write for catalog and discounts on the complete line.
Your Jobbers can supply you.

G-H MANUFACTURING COMPANY

G-H Tension Ring Company, Inc.

6 and 8 East Mount Royal Avenue

Baltimore, Maryland

CHEVROLET production continues at maximum capacity! What greater proof could be given of the enthusiastic public demand for Chevrolet—and the constantly increasing business of Chevrolet dealers?

CHEVROLET MOTOR CO., DETROIT, MICHIGAN
Division of General Motors Corporation

for Economical Transportation



**QUALITY AT
LOW COST**



MMOTOR WHEEL is a single source of supply for manufacturers using both wood and steel wheels. Motor Wheel is equally interested in the cars equipped with either wheel type. The whole line of cars benefits in the opinion of the consumer, when all the wheels are by Motor Wheel.

MOTOR WHEEL CORPORATION, LANSING, MICHIGAN
WOOD WHEELS • STEEL WHEELS • STAMPINGS

Motor Wheel